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ABSTRACT

Prepared for bilingual vocational curriculum specialists, this volume presents eight modules to aid in curriculum development. The first module defines and explores the subject of bilingual vocational education and outlines six models (informal, supplementary, transitional, two-way, gradual, and open) of bilingual education. To illustrate the first of several major steps taken in the preparation of curriculum materials, module 2 provides a needs assessment questionnaire and guidelines. Module 3 also contains a discussion of and a chart for materials analysis. The module following deals with how modifications of learner materials can be made in seven categories (content, objectives, illustrations, activities, format, organization, and language). Module 5 reviews steps in the translation process and suggests ways of avoiding translation pitfalls, assessing translation, and determining textbook readability. Module 6 discusses making preliminary decisions about material production. Also covered in some detail are processes that go into producing printed copies. To examine the materials effectively, module 7 introduces a two-part field testing procedure: collection of information from students and teacher's classroom use of bilingual materials and information analysis for materials revision. A needs assessment questionnaire is provided. The final module contains resource references followed by a glossary. The appendixes include background information on some New York Haitian and Puerto Rican populations. (CSS)

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curriculum development for
bilingual vocational education:

materials modification & translation

(volume 1)

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Department of Technology
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1978

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preface

Who is a bilingual vocational curriculum specialist? That person is preferably bilingual or, at least bicultural, who may function in one or a number of different capacities: instructor, department chairperson, principal, state or local director of vocational education, or curriculum coordinator.

In order to use these modules that specialist will have a number of responsibilities

- ☐ Formation of an advisory group composed of bilingual parents and students, administrators, and teachers
- ☐ Coordination of local decision making
- ☐ Supervision of writers
- ☐ Supervision of translations
- ☐ Coordination of materials production

The tasks outlined in Modules 2 and 3 may be carried out simultaneously under the supervision of the specialist. However, Modules 4 through 7 are best achieved in sequence by the persons with the necessary skills. It is of course imperative that the persons who are developing the curriculum not only be familiar with the required technical skills but also with the culture of the students for whom they are preparing the materials.

Ronald D. Todd
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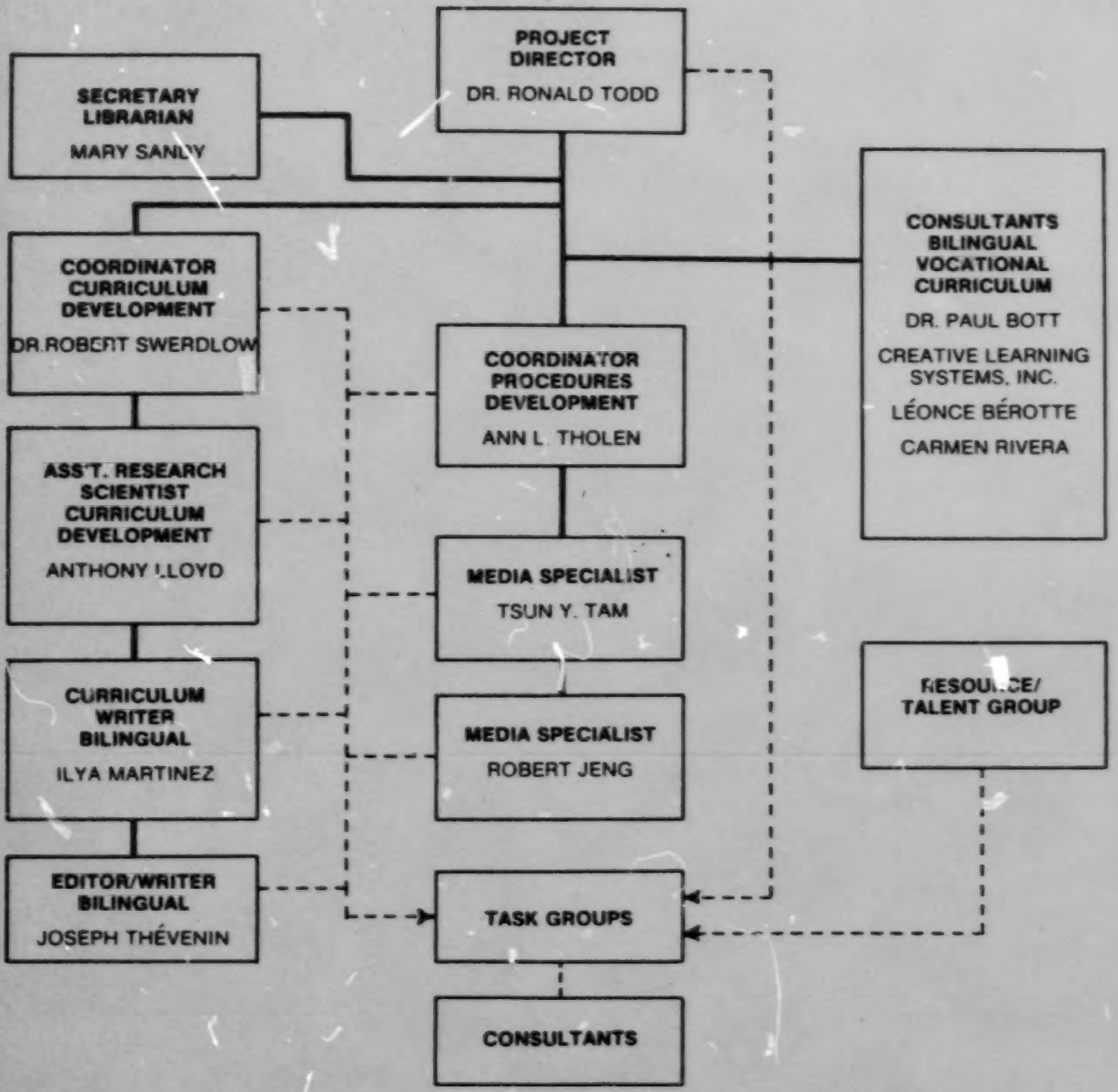
Without the active participation of all the members of the Bilingual Vocational Education Curriculum Development Project, this handbook would not have found its way into print. However, there are always particular members of a team whose roles are more clearly defined and who therefore participate more actively than the others. The two members of the team who filled those roles are Anthony Lloyd and Ann Tholen. They in turn wish to mention the patient and enduring help of the Project secretary Mary Sandy who is perhaps more familiar with every word of the manuscript than any other member of the team.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Why bilingual vocational education?

The process of education is conducted through the vehicle of language. In most classrooms in the United States that language is English. However, through no fault of their own, students are arriving in school unfamiliar in varying degrees with the language that is the tool of instruction. Consider how difficult it is to answer questions or react to instructions if you understand only every fifth word.

According to the National Center for Education Statistics (see Figures 1, 2 and 3 for details), in 1975 there were 10.6 million out of 83 million children and young adults, 4 to 25 years old, living in households where either the usual or second language was other than English.

> **"The process of education is conducted through the vehicle of language."**

Studies further showed that the use of languages other than English was highest among the Spanish and selected Asian ethnic origin groups. These children want to learn and need to learn. In New York alone there are approximately two and one-half million Puerto Ricans. According to the last census 51.4% of this population lives in poverty stricken circumstances. The median income of a Puerto Rican in the U.S. is $3,500. The dropout rate among Puerto Rican young people is

very high. According to the 1960 census 13% of the Puerto Ricans who were 25 years or older had completed high school, and about 52% had less than an eighth grade education. In that same age group, 87% had dropped out without graduating from high school.

The rate of Puerto Rican drop-outs in New York City schools is the highest of any ethnic group. A study made in 1966-67 found that 53% of the Puerto Ricans between their sophomore and junior year drop out of high school. This rate is followed by 46% in the Black group and only 29% in Others (mainly white). This number does not include those who drop out of junior high school nor others who never reach graduation. Those who graduate from high school but do not enter college are extremely limited since they reflect an inadequacy in oral English even upon graduating, and have non-marketable skills when they leave school. Even though Puerto Ricans received 7.4% of vocational high school diplomas in 1963, in contrast to 1.6% of academic diplomas, their difficulties with the English language decreased their ability to put their skills to use.[1]

The Economic Development Council of the City of New York found the highest absentee rates among Blacks and Puerto Ricans.

If the purpose of education is to provide to students viable choices for the future, then clearly vocational education must give students a chance to learn a skill in their native language. Further, if it is the purpose of vocational education to

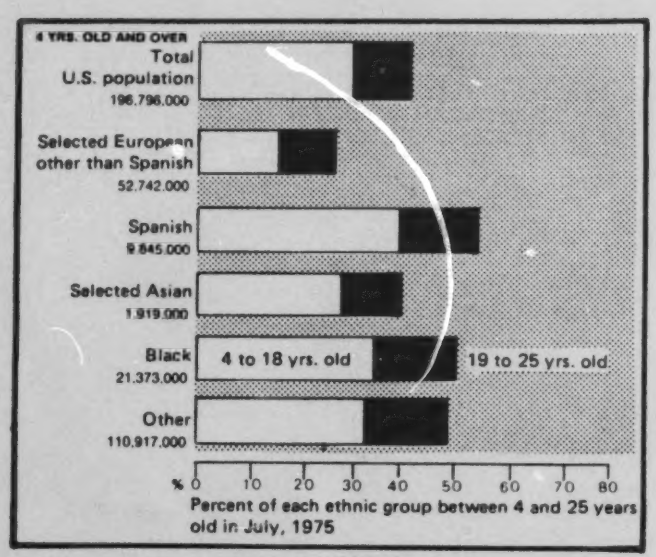

4 YRS. OLD AND OVER
Total U.S. population 196,796,000
Selected European other than Spanish 52,742,000
Spanish 9,845,000
Selected Asian 1,919,000
Black 21,373,000
Other 110,917,000
4 to 18 yrs. old
19 to 25 yrs. old
% 0 10 20 30 40 50 60 70 80
Percent of each ethnic group between 4 and 25 years old in July, 1975

Figure 1. Age composition of ethnic groups

Source of Figure 1: National Center for Education Statistics, July 1975 Survey of Languages

provide to students a marketability on the labor market, then it is incumbent upon vocational educators to see to it that students of limited English speaking ability learn a skill and English and be able to eventually enter the labor

> **"Vocational education must give students a chance to learn a skill in their native language."**

market. It should therefore be the philosophy of bilingual vocational education that a student can be taught a skill in a language other than English while at the same time learning English as A Second Language as part of their general educa-

When students are forced to function in a language that sounds like gibberish to them, they will not learn.

tion since the language of employment in the U.S. is English. This in no way means to suggest that the language and culture of the student should at any time be denigrated in the classroom or school as a whole. Nor is it meant to suggest that vocational education is the only educational choice for bilingual students and students of limited English speaking ability.

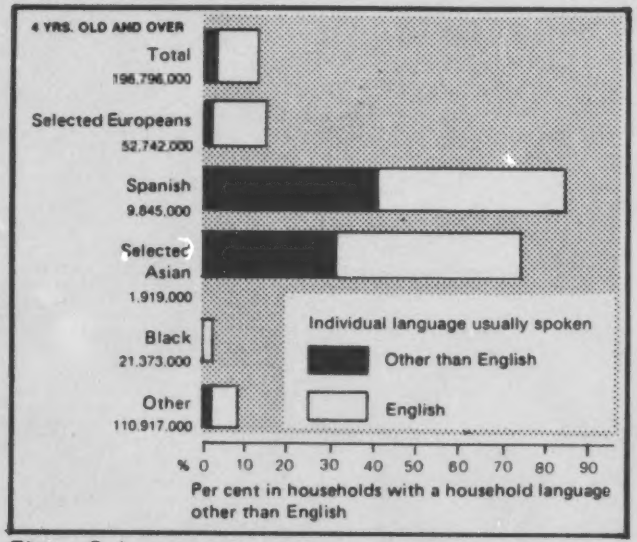


Figure 2. Language usage

Source of Figures 2 and 3: National Center for Education Statistics. July 1975 Survey of Languages.

What is bilingual vocational education?

Regardless of the learning conditions, meaningful materials are always learned faster and retained longer than nonsense materials. Many teachers overlook the fact that material which appears meaningful to them may seem nonsensical to the student...One of the chief values of vocational education is the fact that it can change material which some students consider nonsense into relevant and meaningful material.[2]

Language spoken in households	Total population, 4 years old and over	School-age population, 4 to 25 years old
Total	**196,796,000**	**83,150,000**
English only	167,665,000	72,404,000
Non-English as usual or other language	25,347,000	10,639,000
Spanish	9,904,000	5,162,000
French	2,259,000	967,000
German	2,269,000	794,000
Greek	488,000	189,000
Italian	2,836,000	952,000
Portugese	349,000	117,000
Chinese	534,000	219,000
Filipino	377,000	174,000
Japanese	524,000	213,000
Korean	246,000	107,000
Other	5,559,000	1,741,000
Not reported	3,786,000	1,106,000

Figure 3. Household languages of the population: July 1975

If language is considered a tool of instruction, then there are obviously students who would learn a skill more thoroughly and quickly if they were taught in their native language. To students of limited English speaking ability, English sounds like gibberish. It therefore quickly becomes apparent to that student that persisting in an activity that he/she does not understand is a waste of time.

Those students, because they don't understand what is happening in the classroom, can often

become apathetic, be absent frequently, and make disciplinary problems; and because they know their time is being wasted, they eventually drop out of school.

A student of limited English speaking ability who has chosen a vocational subject can be taught using his native language as a vehicle of instruction. When this is done, bilingual education begins to take place.

There are several models of Bilingual Education, all of which have their proponents and all of which may be adaptable to vocational education. (See Figure 4 for an outline of those Models of Bilingual Education.)

Whatever model is chosen, it is clear that there will be certain requirements for teachers who will function in a bilingual vocational education setting, and there will be a need for curricula to be used in the bilingual setting. It is surprisingly easy to begin to acquire some of those skills, many of which have to do with a shift in attitude rather than actually going back to school.

> Most Americans have little appreciation of cultures which exist outside their continent, and indeed have little understanding and appreciation of values held outside the American middle class from their own particular section of the country. As vocational educators are forced to work with lower class leaders who demand respect, these attitudes may gradually change.[3]

It is then a matter of dealing with the traditional fear in the United States of foreign language and foreigners, for after all a majority of bilingual students and students of limited English speaking ability are U.S. citizens.

Outlined below are several options for those teachers who wish to shift the orientation of the class to bilingual vocational education. The options for a monolingual and bilingual teacher vary, but are designed to accomplish the same goals.

If a monolingual teacher wishes to begin to change a vocational education class toward being bilingual, it can be relatively easy to do so keeping the following in mind:

A monolingual English speaking teacher must be willing

☐ To learn basic technical vocabulary in the students' native language.

☐ To use student or para-professional interpreters for parent-teacher conferences.

☐ To use bilingual students' translating ability in the classroom/shop.

☐ To use bilingual para-professionals in the classroom or shop.

☐ To use bilingual materials in the classroom or shop.

☐ To learn the students' culture and how it affects learning styles and attitudes toward work.

Models of Bilingual Education

I. The Informal Model
Two or more languages co-exist in school as a means of communication, and occasionally as a medium of instruction.

This is an indirect bilingual instruction carried out by non-professionals speaking in either language to students used as translators when needed or students speaking either language among themselves.

II. The Supplementary Model
This is a partial introduction to bilingual education, where only some subject areas are taught in the students' native language.

III. The Transitional Model
Aims to develop proficiency both in English and Spanish. Instruction is in a transfer form where instruction is first in the native language then to English at all levels. The objective of a transitional program is to get students to be fluent in English so that all their classwork can be taught in English.

IV. The Two-Way Model (Language Maintenance)
There are two different models within this:

A. One method of maintaining the native language in a school is by having students taking their native language as a class and/or by having the culture-based subjects taught in the students' native language.

B. The second method is where there is no distinction made between languages and a student is given a chance to use both languages in both domains.

V. The Gradual Model
This is the approach used most often by school districts. By this method a student coming to a school not knowing English will get the initial instruction in his or her native language with an intensive English As A Second Language program. As the student learns more English there is an increase in the second language until he or she is proficient in English. The model is like the transitional model but it takes more time to arrive at proficiency.

VI. The Open Bilingual Classroom
This model can help solve many problems for districts because many grades can be serviced at one time as well as students of different language abilities. With this method there is a need for a master teacher and one or two other teachers plus an E.S.L. teacher. The students can work at their own speed and level in whatever language they are proficient. While the bilingual teachers are working on the subject areas, the E.S.L. teacher can concentrate on the specific problems of the students in the classroom. All the teachers working as a team will insure a complete education.

Figure 4.

If after starting in the above manner, a teacher wishes to improve his/her bilingual skills, then the following could be accomplished:

☐ Learn to speak the students' native language well.

☐ Conduct classes according to a prescribed model for bilingual education.

☐ Take university courses that are designed to prepare bilingual educators.

☐ Become better acquainted with the bilingual community.

Preparation of the teacher who is bilingual

Since very few bilingual persons have the opportunity for a formal education in their own language, they cannot necessarily teach in a bilingual setting without some training. This can be remedied (1) through studying privately, (2) by attending special courses of instruction (3) by spending summers or a year in a university setting, preferably in a country of the language concerned, or (4) by becoming acquainted with his/her culture and how it differs from the Anglo culture (intellectualizing rather than having instinctual reactions).

If a teacher wishes to teach from a bilingual point of view, then it will be necessary to arrange for the development and/or acquisition of bilingual vocational education materials. If materials are developed according to the criteria in this handbook, a teacher who speaks a relatively small amount of the students' native language can conceivably use them comfortably in a setting where there are bilingual students and students of limited English speaking ability. It is hoped of course that the teacher will take steps to become more fluent in the students' native language.

The effectiveness of bilingual vocational education as a method then depends on such factors as (1) teachers who are genuinely interested in the success of their bilingual students and students of limited English speaking ability; (2) teaching methods in the target language and English that seem relevant to those students; (3) an atmosphere of acceptance of the students' culture and language; (4) content that is viewed as a means to an end rather than an end in itself; and (5) curriculum materials that take into account cultural and linguistic differences.

References

1. Saville-Troike, Muriel. *Bilingual Children, A Resource Document*, Bilingual Education Series: 2. Arlington, VA: Center For Applied Linguistics, 1973, p. 88.

2. Evans, Rupert N. and Edwin L. Herr. *Foundations of Vocational Education*. Columbus, Ohio: Charles E. Merrill Publishing Co., 1978, p. 132.

3. Ibid. p. 323

Instructions on the use of this curriculum development handbook follow.

needs assessment

Getting started

Needs Assessment is the first of several major steps taken in the preparation of curriculum materials for use in bilingual programs. You should determine the discrepancy between what you believe to be the most productive form of bilingual learner materials and the actual form that existing materials take. A needs assessment provides that first step, namely, determining the form of the bilingual materials you are going to produce. Assessment of needs is divided into the seven categories of content, objectives, illustrations, activities, format, organization, and language.

Before you can determine the form your bilingual materials will have, several preparatory steps must be taken.

1. Select participants

☐ Identify those persons who will participate in the needs assessment activities, *i.e.*, those groups and individuals who develop, implement, use, and have an interest in the bilingual learner materials.

☐ Work with your advisory committee to select participants for the needs assessment activities.

☐ Develop a communications network or team between the different groups (students, teachers, parents, etc.) using key influence people within each group.

☐ Prepare the needs assessment questionnaire for use with the participants. Print or duplicate an adequate number of questionnaires.

2. Administer questionnaire

☐ Arrange meetings with the participants.

☐ Administer the needs assessment questionnaire following the instructions on the form.

3. Synthesize the responses

☐ Collect and score the questionnaire using the following instructions.

How to use the questionnaire

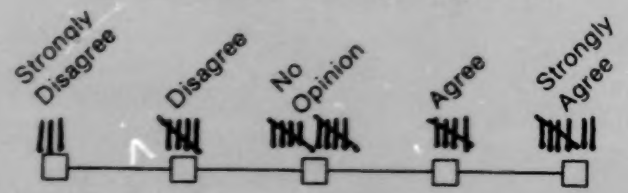
At the end of this module you will find two sample questionnaires: one to be administered to those teachers and administrators who have been chosen to participate, the other to be administered to those parents and students who have been chosen to participate.

When the questionnaires have been completed and returned to you, use the following procedure to find out what the questionnaires are really telling you.

How to determine what the needs assessment questionnaire tells you

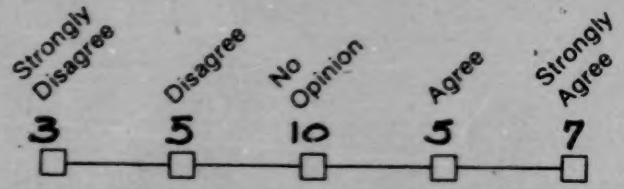
When the questionnaires have been returned to you, go through them and count the number of responses. Record them on a blank questionnaire. At this point your Response Chart should look something like this:

Content should depend heavily on illustrations.



After you have tallied all of your responses for each item in this elementary fashion, add up the responses and record on yet another blank questionnaire. Your new Response Chart will look something like this:

Content should depend heavily on illustrations.



Be sure to include a representative number of bilingual persons on the advisory committee.

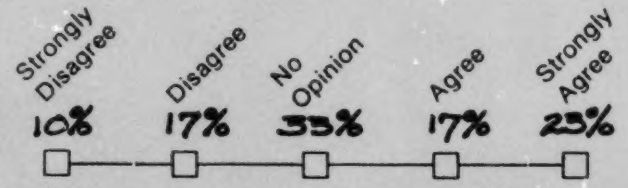
Provide an interpreter for advisory committee meetings.

Provide a translated questionnaire for persons of limited English speaking ability.

It may be necessary to consult the advisory committee at this point.

So far you know the opinions of your respondents in numerical terms. Now it is relatively simple to determine the percentage of respondents. When you have done so record the percentage of each opinion on another blank questionnaire. Your new Response Chart should look something like this:

Content should depend heavily on illustrations.



If you have chosen to administer the same questionnaire to teachers, administrators, students and parents, you have now completed your Needs Assessment Response Chart.

If, however, you have chosen to administer the somewhat simplified questionnaire to students and parents, you will now have two Needs Assessment Response Charts, one from the questionnaire administered to teachers and administrators and the other from that administered to parents and students.

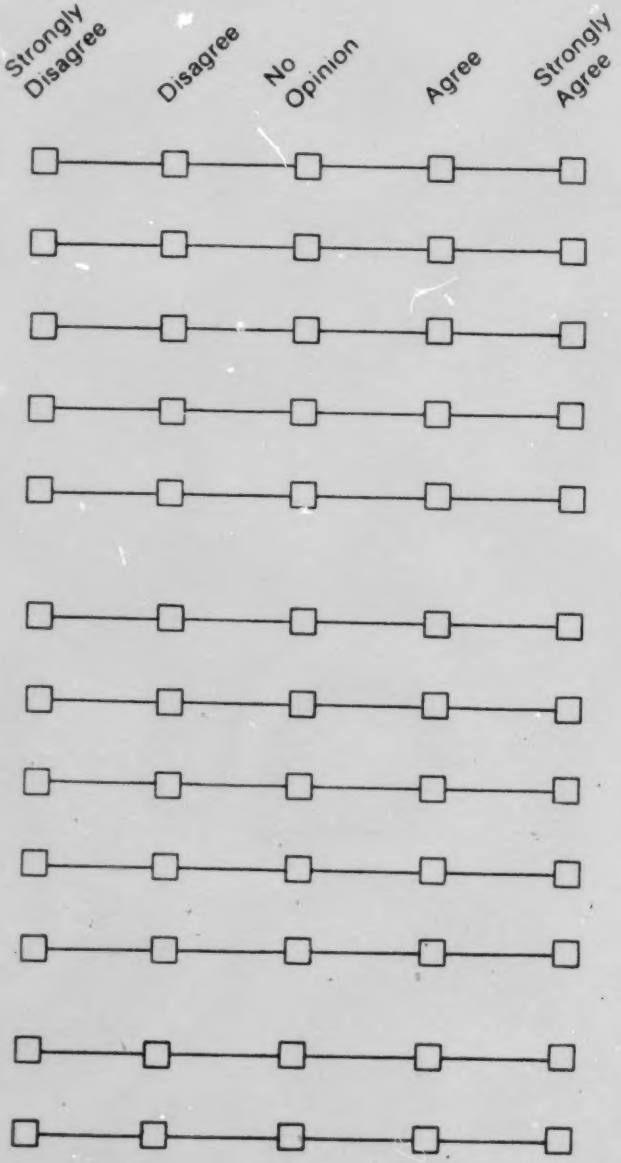
Now compare the responses on those two Charts. If you find that there is a marked disagreement in percentage of responses on a question or questions, the most practical solution would be to ask the advisory committee for recommendations.

So far you have learned how to conduct a Needs Assessment and record the results. Those results should establish what types of bilingual learner materials the respondents would like to have produced.

Below you will find a sample questionnaire that you can administer to teachers and administrators to find out the form the bilingual learner materials should take. The opinion ranges from left to right *Strongly Disagree, Disagree, No Opinion, Agree,* and *Strongly Agree.*

NOTES:

NEEDS ASSESSMENT QUESTIONNAIRE



Content

Ideas and concepts should be presented in a simple manner.

Complex concepts should be broken down into a number of simple concepts.

Content should depend heavily on written text.

Content should depend heavily on illustrations.

Content should contain balanced proportions of written text and illustrations.

Objectives

Objectives should be consistent with content.

Instructional objectives should clearly specify for the students what is to be learned.

Objectives should explain to the students how they are going to demonstrate their learning.

Objectives should include a statement of criteria to be used in evaluating students' performance.

Objectives should be stated in behavioral terms.

Illustrations

The illustrations should be appropriately placed in relation to textual materials.

The illustrations should be appealing.

NEEDS ASSESSMENT QUESTIONNAIRE (cont'd)

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	
					Illustrations (cont'd)
☐	☐	☐	☐	☐	The illustrations should be uncluttered.
☐	☐	☐	☐	☐	The illustrations should be colorful.
☐	☐	☐	☐	☐	The illustrations should have multi-racial representation.
☐	☐	☐	☐	☐	The illustrations should not be sexually stereotyped.
					Activities
☐	☐	☐	☐	☐	The activities should be project oriented.
☐	☐	☐	☐	☐	The activities should be clear to students.
☐	☐	☐	☐	☐	Activities should clearly indicate to students what they are to do to put their knowledge of content in effect.
☐	☐	☐	☐	☐	The activities should be presented in an understandable way.
☐	☐	☐	☐	☐	The activities should be student oriented.
					Format
☐	☐	☐	☐	☐	Format should be readable.
☐	☐	☐	☐	☐	The layout of the materials should not be distracting.

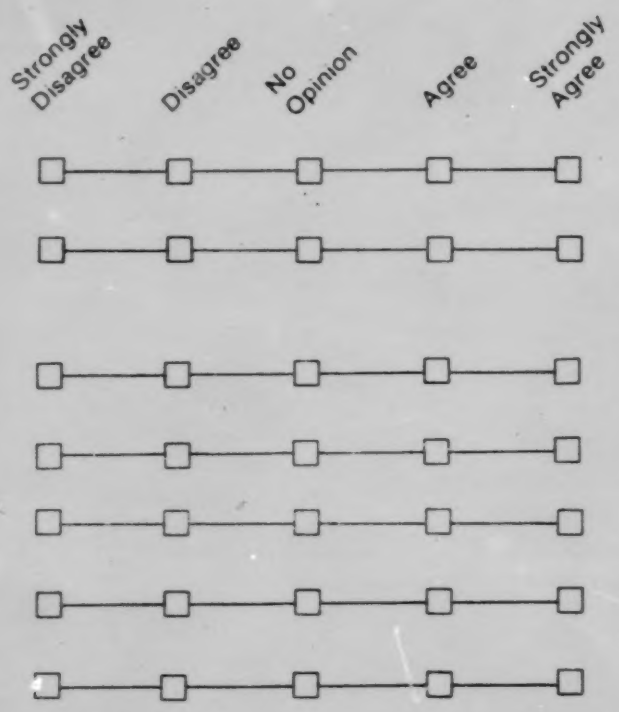
NEEDS ASSESSMENT QUESTIONNAIRE (cont'd)

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	
					Organization
☐	☐	☐	☐	☐	The order of the materials should be sequential.
☐	☐	☐	☐	☐	The emphasis of the materials should be on theory.
☐	☐	☐	☐	☐	The emphasis of the materials should be on practical aspects.
☐	☐	☐	☐	☐	The materials should present a combination of theoretical and practical aspects.
☐	☐	☐	☐	☐	The materials should provide for teacher-led learning activities.
☐	☐	☐	☐	☐	Materials should provide for group student learning activities.
☐	☐	☐	☐	☐	Materials should provide for individual student learning activities.
					Language
☐	☐	☐	☐	☐	The style of the materials should be understandable.
☐	☐	☐	☐	☐	The materials should be free of superfluous details.
☐	☐	☐	☐	☐	The materials should be written in simple sentences (simple = 1 main clause; complex = 2 or more main clauses with or without dependent clauses).
☐	☐	☐	☐	☐	The materials should be written with consistent verb forms.
☐	☐	☐	☐	☐	Materials should be written at least at grade level.

NEEDS ASSESSMENT QUESTIONNAIRE

Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree	
					Content
☐	☐	☐	☐	☐	Contents should be presented in a simple manner.
☐	☐	☐	☐	☐	Complex concepts should be broken down into a number of simple concepts.
☐	☐	☐	☐	☐	Content should depend heavily on written text.
☐	☐	☐	☐	☐	Content should depend heavily on illustrations.
☐	☐	☐	☐	☐	Content should contain balanced proportions of written text and illustrations.
☐	☐	☐	☐	☐	Analogies and examples used in the materials should be familiar to the students.
☐	☐	☐	☐	☐	Students should be accustomed to textual materials with few illustrations.
☐	☐	☐	☐	☐	Students should be accustomed to materials with many illustrations.
					Organization
☐	☐	☐	☐	☐	The order of the materials should be sequential.
☐	☐	☐	☐	☐	The emphasis of the materials should be on theory.
☐	☐	☐	☐	☐	The emphasis of the materials should be on practical aspects.
☐	☐	☐	☐	☐	The materials should provide for teacher-led learning activities.

NEEDS ASSESSMENT QUESTIONNAIRE (cont'd)



Organization (cont'd)

Materials should provide for group student learning activities.

Materials should provide for individual student learning activities.

Language

The style of the materials should be understandable.

The materials should be free of unnecessary details.

The materials should be written in simple sentences (simple = 1 main clause; complex = 2 or more main clauses with or without dependent clauses).

The materials should be written with consistent verb forms.

Students should be able to read at least at grade level.

Illustrations

The illustrations should be placed next to textual materials.

The illustrations should be uncluttered.

The illustrations should be colorful.

The illustrations should have multi-racial representation.

Definitions of words

content(s): the topic or matter in a field of study

illustrations: drawings, photographs, pictures, charts, etc.

text: textbook used in course

analogy: comparison of two things that are similar

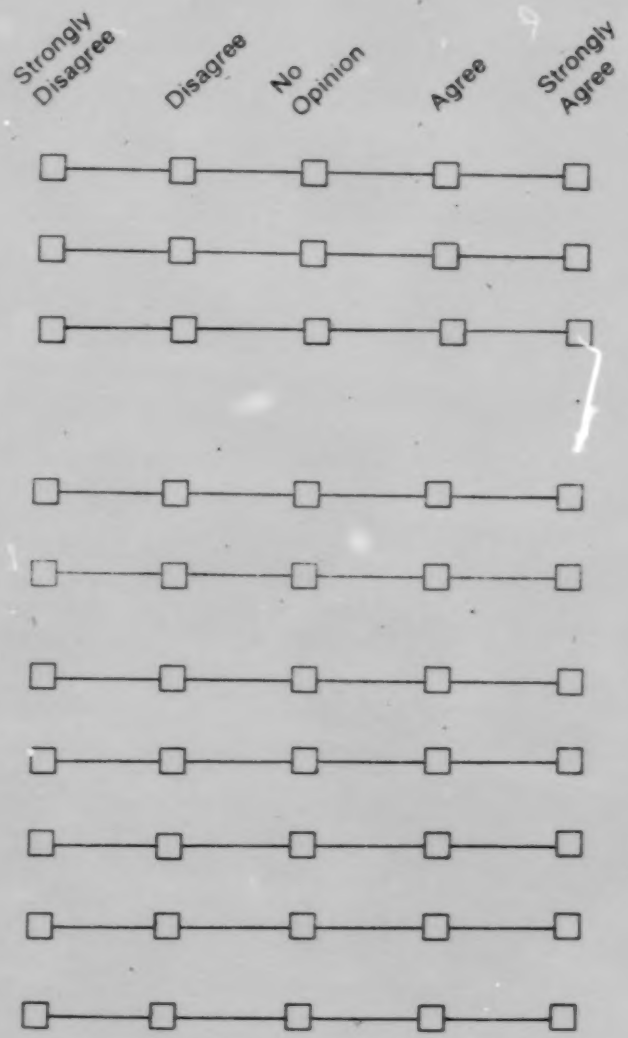
sequential: following in order

textual: related to textbook of course

format: style of organization or arrangement

style: a way of expressing thoughts in language.

details: items or elements that make up the learning materials



NEEDS ASSESSMENT QUESTIONNAIRE (cont'd)

Illustrations (cont'd)

The illustrations should be appealing according to the students' culture.

The illustrations should contain colors that are acceptable in the students' culture.

The illustrations should show male/female students at other than traditional roles.

Format

The way it is represented should be readable.

The layout of the materials should not be distracting.

Activities

The activities should be project oriented.

Activities should clearly explain to students what they are to do and how to use what has been learned.

The activities should be presented in an understandable way.

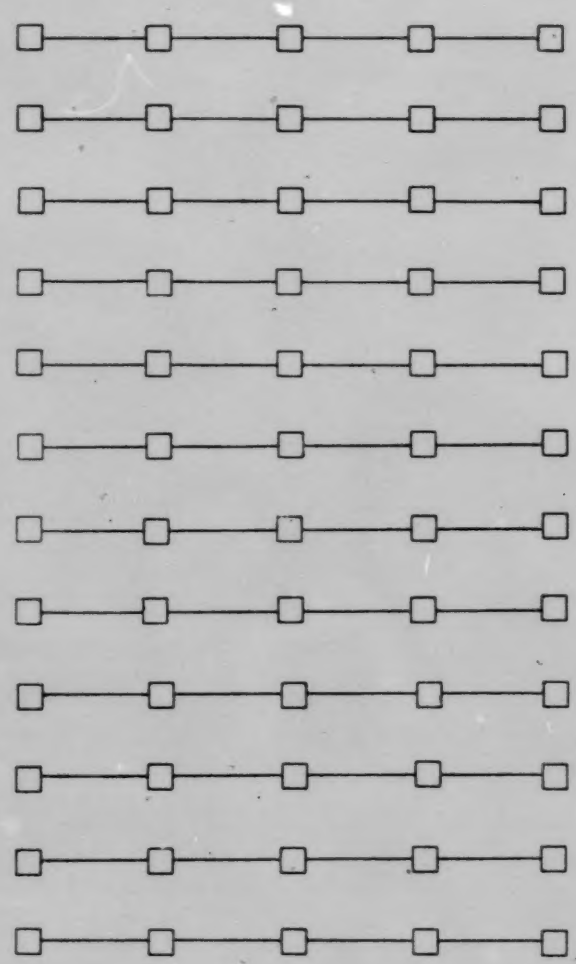
The activities should be student oriented.

The activities should be clear to students.

This page is for additional local questions.

NEEDS ASSESSMENT QUESTIONNAIRE (cont'd)

2.17



MATERIALS ACQUISITION

Curriculum materials in the area of vocational education are available from several sources. Some of these materials can be modified and adapted for use with bilingual students. Two types of materials are available: copyright-free materials and copyrighted works.

Copyright-free materials

Copyright-free vocational education materials are available through the ERIC and SEIMC systems and from federal and state agencies.

The ERIC system. ERIC is an acronym for Educational Resources Information Center. The ERIC system is a nationwide, computer-based information storage and retrieval system. It contains several hundred thousand documents relating to the general area of education. A considerable number of these documents pertain to the field of vocational education, specifically.

While most of the vocational education documents are not designed to be used by students, some are student oriented. Student-oriented materials can often be modified and adapted for use with bilingual students.

Documents are selected by ERIC clearinghouses for inclusion in the ERIC system. The clearinghouse for materials on vocational and technical education is located at Northern Illinois University, 204 Gurler Hall, DeKalb, Illinois 60115.

Complete sets of the microfiche of all documents included in the system are kept at ERIC centers and at libraries located in all 50 states. Some locations with ERIC collections are equipped to provide a computer search service. This service can be used to identify all of the documents on a given subject that are part of the ERIC collection.

AIM/ARM provides another method for locating information on a vocational subject. AIM/ARM is published monthly and contains abstracts of the instructional and research materials in vocational and technical education that are included in the ERIC system.

For further information on ERIC and its functions, write the National Institute of Education, U.S. Department of Health, Education, and Welfare, Washington, DC 20202.

The SEIMC system. SEIMC is an acronym for Special Education Instructional Materials Centers. These centers comprise a nationwide system for producing and disseminating materials for special education. (Special education includes instruction of the mentally and physically handicapped, the emotionally disturbed, and students with learning disabilities.) Some of the instructional materials available through the SEIMC system cover vocational subjects. These can be modified and adapted for use with bilingual students.

To obtain information about SEIMC locations and services, write to: Special Education IMC/RMC Network, 1411 South Jefferson Davis Highway, Suite 928, Arlington, VA 22202.

Federal agencies. A number of federal agencies have published materials relating to vocational education. Some of these materials can be modified and adapted for use with bilingual students. A series of seven paperbound books entitled *Vocational Instructional Materials Available from Federal Agencies* (VIMFA) list these materials.

Each paperbound book covers one of the following occupational areas: agriculture, distributive education, health occupations, home economics, office occupations, technical education, and trade and industrial occupations.

Contained in each book is a listing of governmental publications. Also included are descriptions, prices, and sources from which the publications can be obtained.

The seven VIMFA books may be purchased from the U.S. Government Printing Office, Washington, DC.

State agencies. Curriculum materials are also available from state agencies. Some of these materials are student oriented and can, after modification, be used with bilingual students.

A series of seven paperbound books entitled *Vocational Education, State Instructional Materials* (VES) list these materials. Each book covers one of the following occupational areas: agriculture, distributive education, health occupations, home economics, office occupations, technical education, and trade and industrial occupations.

Analyze your materials in the same seven categories as the Needs.

Contained in each book is a listing of state publications (by State) including a brief description of each item.

The seven VES books may be purchased from the U.S. Government Printing Office, Washington, DC.

Copyrighted works

Books in Print, which is published annually, indexes by author, title, and subject all of the books that are produced by commercial publishers during the preceding year. *Books in Print* can be found in most libraries and in many bookstores.

Each year a wide variety of student-oriented materials in vocational education are published by commercial publishers. These are usually copyrighted works and may not be reproduced without the written permission of the copyright holder.

It is sometimes possible to obtain a publisher's permission to adapt a copyrighted work for use with individuals or groups of students that have special needs. Bilingual students comprise one such special-needs group. You may want to ask the publisher of the English language materials that are normally used in your vocational program for permission to translate those materials so that they can be used with bilingual students. Be sure to obtain the written permission of the publisher before modifying and adapting any copyrighted work.

However, some publishers of English-language texts may be interested in the results of your adaptations of their materials; therefore, they may be more willing to approve your use of their copyrighted material.

ANALYSIS OF MATERIALS

You have already established, by means of the Needs Assessment, the form that your bilingual materials ideally should take, and you have also acquired a selection of possible materials to choose from for translation.

You are now at the stage of having to select the most promising materials. You will probably find that some materials are obviously less suitable for your purpose than are others, and those you will immediately reject.

Your task then will be to make a final choice of the most suitable materials out of those that remain. In order to make such a choice you must first find out in detail what the materials you are considering are actually like; and, bearing in mind that you will have to compare the materials with the ideal requirements established by the Needs Assessment, you should use the Materials Analysis chart that appears at the end of this module. This chart is a repetition of the Needs Assessment chart and will allow you to assess the actual characteristics of your materials in exactly the same seven categories in which the needs were expressed (i.e., content, objectives, illustrations, activities, format, organization, and language).

(Note that whereas the Needs questionnaire was expressed in terms of "should," the materials analysis questionnaire is expressed in terms of "is/are," since this is an analysis of actual characteristics.)

Complete the chart by marking your assessment of the characteristics of the materials on the appropriate scales, ranging as before from "Strongly Disagree" to "Strongly Agree"; you will then obtain a set of answers, looking something like Figure 1, that tell you in detail the characteristics of the materials in each of the seven main categories.

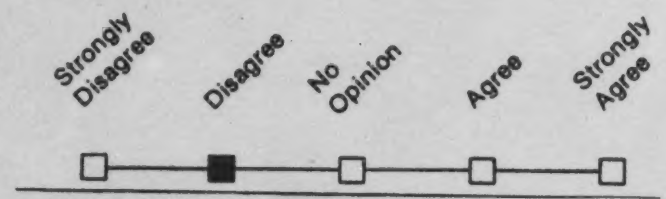


Figure 1. Typical chart for recording characteristics of learning materials in a category.

Transfer the information you have recorded on the Materials Analysis Chart to the chart in the Modification Module. The results coupled with those of the Needs Assessment Module will enable you to know the extent of required modification.

A complete chart to be used in Materials Analysis may be found at the end of this module. Answer each statement carefully.

MATERIALS ANALYSIS CHART

3.5

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Objectives					
Objectives are consistent with content.	☐	☐	☐	☐	☐
Instructional objectives clearly specify to the students what is to be learned.	☐	☐	☐	☐	☐
Objectives explain to the students how they are going to demonstrate their learning.	☐	☐	☐	☐	☐
Objectives include a statement of criteria to be used in evaluating students' performance.	☐	☐	☐	☐	☐
Objectives are stated in behavioral terms.	☐	☐	☐	☐	☐
Content					
Concepts are presented in a simple manner.	☐	☐	☐	☐	☐
Complex concepts are broken down into a number of simple concepts.	☐	☐	☐	☐	☐
Content depends heavily on written text.	☐	☐	☐	☐	☐
Content depends heavily on illustrations.	☐	☐	☐	☐	☐
Content depends heavily on either written text or illustrations.	☐	☐	☐	☐	☐
Organization					
The units of the curriculum are presented in logical succession.	☐	☐	☐	☐	☐

MATERIALS ANALYSIS CHART (cont'd)

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Organization (cont'd)					
The emphasis of the materials is on theory.	☐	☐	☐	☐	☐
The emphasis of the materials is on practice.	☐	☐	☐	☐	☐
The materials present a combination of theory and practice.	☐	☐	☐	☐	☐
Materials provide for teacher-led learning activities.	☐	☐	☐	☐	☐
Materials provide for group student learning activities.	☐	☐	☐	☐	☐
Materials provide for individual student learning activities.	☐	☐	☐	☐	☐
Language					
The style of the materials is understandable.	☐	☐	☐	☐	☐
The materials are free of superfluous details.	☐	☐	☐	☐	☐
The material is written in simple sentences.	☐	☐	☐	☐	☐
Consistent verb forms are used.	☐	☐	☐	☐	☐
The materials are written at students' grade level.	☐	☐	☐	☐	☐
Illustrations					
The illustrations are appropriately placed in relation to textual materials.	☐	☐	☐	☐	☐

3.7

MATERIALS ANALYSIS CHART (cont'd)

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Illustrations (cont'd)					
The illustrations are visually attractive.	☐	☐	☐	☐	☐
The illustrations are uncluttered.	☐	☐	☐	☐	☐
The illustrations are colorful.	☐	☐	☐	☐	☐
The illustrations have multi-racial representation.	☐	☐	☐	☐	☐
The illustrations include both female and male figures at all occupations.	☐	☐	☐	☐	☐
Format					
The format is readable.	☐	☐	☐	☐	☐
The layout of the materials is not distracting.	☐	☐	☐	☐	☐
Activities					
The activities are project oriented.	☐	☐	☐	☐	☐
The activities clearly explain to students how to put their knowledge of content in effect.	☐	☐	☐	☐	☐
The activities are presented understandably.	☐	☐	☐	☐	☐
The activities are student-oriented learning activities.	☐	☐	☐	☐	☐
The activities are clear to students.	☐	☐	☐	☐	☐

3.9

Materials modification

The modificaton of learner materials for the use of bilingual persons or persons of limited English speaking ability is limited to seven categories. These include the modification of (1) content, (2) objectives, (3) illustrations, (4) activities, (5) format, (6) organization, (7) language. This Module will deal with how changes of learner materials can be made in each of these categories.

The amount of modification needed is determined by comparing the chart derived from the Needs Assessment with the chart derived from the Materials Analysis sequence. The results from your Needs Assessment chart should look like Figure 1.

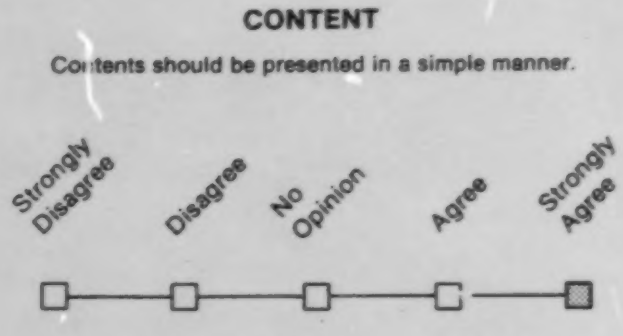


Figure 1. Sample indicator derived from the Needs Assessment in the category of "Content"

The results from your Materials Analysis chart should look like Figure 2.

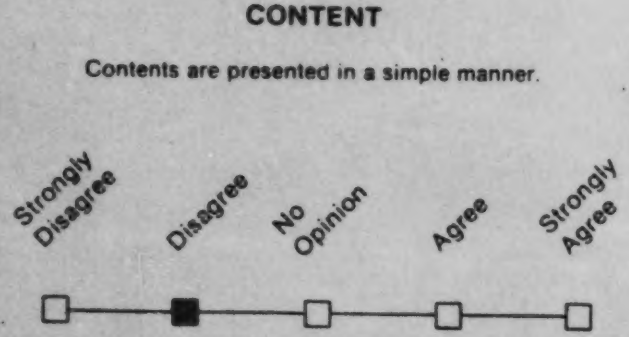


Figure 2. Sample indicator derived from Materials Analysis in the category of "Content"

> **"A gross mismatch may make it very difficult to modify a given text. A small mismatch would indicate that the content may be usable with bilingual students."**

When both profiles are placed on the same set of scales, the degree of discrepancy between the actual and desired forms of the content are shown graphically. This mismatch is shown in Figure 3.

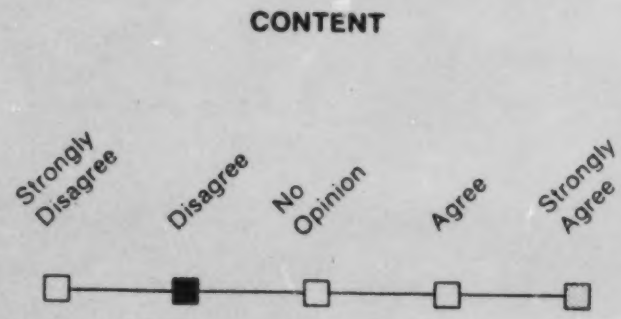


Figure 3. Sample discrepancy of desired characteristics in the category of "Content"

The distance between the two indicators shows graphically the degree and the direction of mismatch between the two profiles. A gross mismatch may make it very difficult to modify a given text. A small mismatch would indicate that the content may be usable with bilingual students. For example, the content of learner materials may be too abstract and require modification to make that content more concrete. On the other hand, some materials may be too concrete and may require an increased level of abstraction.

The STEPS IN MODIFICATION section of this Module gives instructions on how to make modifications in each category. You should remember that the instructions are of a general nature, but are not necessarily all-inclusive.

Where the mismatch is not too great, materials may be modified to make them usable in bilingual programs.

STUDENT PROFILE

Before you can go on to the modification of your materials, there is one important thing to do: the preparation of a student profile. This is a compilation of cultural information about your bilingual students and students of limited English speaking ability. This information must be borne in mind at all times when you are modifying materials; it will also be very useful for teachers of those students. This section tells you how to prepare a student profile.

PREPARING A STUDENT PROFILE

Potential differences among learners

Though all learners can possess basic human characteristics which are similar, they can also differ in race, culture, language, and socio-economic status. When working with bilingual students and students of limited English speaking ability, it is especially important to keep in mind the linguistic and cultural differences an instructor may encounter in the classroom.

Language. Bilingual students are those students who speak both English and their native language well but may or may not read both languages equally as well. A student of limited English speaking ability cannot speak or understand English well nor can he/she read it well. That student may or may not read his/her native language well.

Culture. Though individuals differ within a given culture, in order to discuss differences between cultures it will be necessary to generalize somewhat. When discussing students from a distinct culture, it should be remembered that culture influences a person's attitudes in several ways. Culture determines the following:

- ☐ attitudes towards the nature of work and play
- ☐ role expectancies and behavior
- ☐ styles of learning and coping
- ☐ attitudes toward order
- ☐ attitudes toward acceptable dimensions of action and noise
- ☐ perspectives on time and space
- ☐ attitudes toward sex role stereotyping.

Depending upon the students' native culture, these dimensions will differ, and what might be ignored or accepted by one culture may be condemned by another. It is most important that value judgments are not made about manifestations of cultural differences. Frequently preoccupation with content will blind a teacher to the possibility that miscommunication may be occuring due to cultural differences. It is therefore incumbent upon the curriculum developer who is preparing curriculum for students from distinct cultures to remember that culture cannot be erased or changed; it is deeply em-

bedded in each person. It can, however, be understood. This understanding can be built into a curriculum.

To achieve such understanding you must first be aware of the national and language background of the students for whom you are preparing bilingual materials. For this you should obtain the information listed here as baseline data.

Baseline data

Prepare answers to the following items in order to determine Baseline Data:

- ☐ Number of bilingual students
- ☐ Number of students of limited English speaking ability
- ☐ Number of both types in vocational education
- ☐ The language(s) spoken in the home
- ☐ Reading levels in English and in the target language
- ☐ Number of bilingual teachers available
- ☐ Number of bilingual paraprofessionals available
- ☐ The subjects that would most interest the bilingual students and limited English speaking ability students
- ☐ The percentage of bilingual students and students of limited English speaking ability in each vocational education class
- ☐ The percentage of bilingual and limited English speaking ability students taught apart from their monolingual peers
- ☐ The country/countries of origin of the students.

After you have obtained the Baseline Data, you will be able to go on to determine the students' cultural characteristics that you will have to take into account when modifying your materials for translation.

This handbook has an Appendix that contains general cultural information relating to Haitians and Puerto Ricans. The bibliography to this handbook lists further sources for cultural information on specific national groups. You may also get extra information from the bilingual members of your advisory committee, but you must remember that members of a particular national group are not always the best informants on cultural matters relating to that group.

"Use the student profile as an aid to modificaiton."

For general information on the Puerto Rican and Haitian populations see the Appendix of this Handbook.

The following list of questions is intended as an aid to determining more precisely the cultural and educational characteristics of your students and in linking that knowledge to the process of materials modification.

On the left below there are questions in general terms relating to your materials. On the right there are corresponding questions of a more specific nature relating to your students. The answers to the right-hand set of questions will help to clarify your judgment of your materials.

Some of the questions relate directly to items in the Needs Assessment and Materials Analysis. Others are of a cultural nature that do not fit neatly into any category but are nevertheless relevant to the process of materials modification.

This list is not all-inclusive; it is an indication of the kinds of things you must bear in mind when modifying materials for students of other cultures. Such an awareness may well bring to light other factors that may be relevant to your own particular group of students.

Are the illustrations appealing to the students' culture?	What colors are most used and favored in the students' culture?
Do the illustrations contain colors that are acceptable to the students?	Are there colors in the students' culture that mean bad luck or are unacceptable for other reasons?
Are the analogies and examples used in the materials familiar to the students?	"This works like a vacuum cleaner, mixer" — Does the student know what a vacuum cleaner is?
Do the materials contain text with few illustrations?	Do the students come from an educational background of memorizing and rote learning?
Are the materials heavily dependent on illustrations?	Do the students, because of previous reading difficulties in English, rely heavily on illustrations?
Do the materials provide for assessment in writing?	Can the students write answers to tests in English? In their own language?
Do the materials provide for assessment by means of essay writing?	Do the students come from a background that required testing by means of essay questions exclusively?

Do the materials provide for assessment by practical performance?	Are the students accustomed to being asked to perform?
Do the materials provide for oral assessment?	Are the students from a culture that discourages speaking out in public?
Do the materials contain multiple-choice tests?	Have students experienced tests requiring a choice from several possible answers?
Do the materials provide assessment on an individual basis?	Are these students more comfortable being tested orally on a one-to-one basis?
Do the materials provide for confidential feedback?	Are the students more comfortable when their fellow students are not aware of their grades?
Do the materials provide for immediate feedback?	Do the students come from a background that has accustomed them to receive an initial appraisal of their work?
Do you know if the students' previous learning experiences in vocational education are sufficient to enable them to participate in class without remedial work?	Did the students recently arrive from a less technologically sophisticated country? Are they familiar with elementary forms of technology?
Do the materials provide for a combination of behavioral and structured learning?	Are the bilingual students more accustomed to lecture type classes with some individual projects?
Do you know if bilingual students are reading at grade level in the target language?	Can bilingual students read their native language?
Do you know if limited English speaking ability students are reading at least at grade level?	What is the reading level in English of the students of limited English speaking ability?
Do you know if bilingual students are reading at least at grade level in English?	What is the reading level in English of the bilingual students?

STEPS IN MODIFICATION

This section consists of a list of possible shortcomings in your materials and instructions as to how to modify them. The categories and items in the list correspond exactly to those in the Needs Assessment and the Materials Analysis. At the beginning of this Module there are instructions on how to identify shortcomings in your materials by noting discrepancies between the Needs Assessment and the Materials Analysis.

When you have identified the shortcomings in that manner, look at the corresponding items in the list below to find instructions for modification. It should be borne in mind that the instructions are of a general nature and are not all-inclusive.

Take care to complete all the steps of the modification process because all the categories are interrelated. You may work with the categories in any order, but you must do them all.

You must also keep the student profile in mind when making modifications. At the end of this Module, you will find an extra section containing instructions on how to modify student evaluation to conform to the students' culture.

When you have checked every item and modified those items that need modification, your materials will be ready for translation.

IF comparison of the Needs Assessment and the Materials Analysis shows that:	THEN:
OBJECTIVES	
Objectives are not consistent with content.	Analyze the content to determine information, concepts, supporting information, and activities in the content. Compare these with the stated objectives of the unit.

Objectives (cont'd)	
	If the objectives are found to be inconsistent with the content, change them to correspond with the identified concepts, supporting information and activities.
	Eliminate extraneous objectives.
	Add necessary objectives.
Objectives do not explain to the students how they are going to demonstrate their learning.	State an actual behavior to be employed in demonstrating mastery of the objective (*e.g.* "to construct" or "to place").
Instructional objectives do not clearly specify to the students what is to be learned.	Specify the product of the performance or the result of the behaviors which will be evaluated to determine whether the objective has been mastered (*e.g.* "a construction" or "a design").
Objectives do not include a statement of criteria to be used in evaluating students' performance.	State the relevant conditions under which the behaviors are to be performed (*e.g.* "in a one hour quiz" or "in front of the class").
	State the standard to be used to judge student performance ("four out of five correct").
Objectives are not stated in behavioral terms.	Determine if objectives include an action verb that denotes the desired behavior(s).
	Consider terms such as those included in the list at the back of this module.

ACTIVITIES **Activities are not project oriented.**	Include tasks that are task oriented either for an individual or for a group. Depending on the target culture, it may be better to make most activities either individually oriented or group oriented. Another target culture may require group activities. Include conditions under which the student will be expected to demonstrate achievement of a given objective (*e.g.* time limits, materials or equipment to be used, or special instructions).
Activities do not clearly explain to students how to put their knowledge of content to use.	Write activities in careful sequence to correspond with the content. Use behavioral terms such as *compute, make (a plan), experiment.* (See included list of behavioral terms. Use level II-V terms.)
The activities are not presented understandably.	Explain activities in short, easy-to-follow steps given in list form rather than paragraph form. Specify time limits and equipment to be used. Consider including graphics or drawings.
The activities are not student-oriented learning activities.	Choose and write activities that will enable the student to work individually or in groups rather than in teacher-controlled activities.
The activities are not clear to students.	Write the activities in simple sentences using precise instructions and specifying time limits and equipment to be used. State if the student is to perform the activity in a group, individually, or with the instructor.

ILLUSTRATIONS **The illustrations are not appropriately placed in relation to textual materials.**	Closely align the illustrations with the text they are intended to clarify. Break up paragraphs if necessary.
The illustrations are not visually attractive.	Use attractive colors, clean lines, few shadows, if any, and labelling in the target language and English. Do not allow words and drawings to obscure or interfere with each other. Do a new illustration if necessary.
The illustrations are cluttered.	Provide drawings that focus on what is to be learned. If necessary draw more than one illustration showing different phases of operations or tasks, with proper and restrained use of hatching or shading so that illustrations are not overloaded with information.
The illustrations are not colorful.	Avoid culturally defined "taboo" colors. When labeling illustrations in two languages, those languages could be color coded. Color coding could also be used to distinguish the given parts of an illustration being discussed.
Illustrations do not have multi-racial representation.	Change the illustrations to include persons from other races. Be careful not to simply darken the faces of drawings of light-skinned persons.
The illustrations do not include both male and female figures at all occupations.	Change the illustrations (drawings, photographs) to show both male and female figures at all

Illustrations (cont'd)	occupations. Ensure that women are represented in what have been regarded as typically male tasks and vice versa.
CONTENT	
Concepts are not presented in a simple manner.	Take out unclear wording, difficult vocabulary and complex grammar. Insert clear information, using a limited vocabulary and simple (one-clause) sentences.
Complex concepts are not broken down into a number of simple concepts.	Allocate one paragraph, at least, to each concept. This will eliminate sentences overloaded with information.
Content does not depend heavily on written text.	Identify important concepts which are presented only in diagrams or illustrations. Supply written text presenting the same concepts to supplement or replace the diagrams or illustrations.
Content does not depend heavily on illustrations.	Identify important concepts which are presented only in written form. Supply diagrams or illustrations to supplement or replace the written concepts.
Content does not contain balanced proportions of written text and illustrations.	Identify principal concepts. Verify that text and illustrations support and complement each other. Supply additional text or illustrations where necessary.

ORGANIZATION

The units of the curriculum are not presented in logical succession.	Ascertain the general plan of progression of the materials you are working with. Identify any units or lessons that do not follow that plan. Reinsert them in a suitable slot in the curriculum. Renumber the units or lessons as necessary.
The emphasis of the materials is not on theory.	Identify principal concepts of each unit. Supply additional information on theory and general principles to supplement student practice. The additional information should relate directly to the concepts.
The emphasis of the materials is not on practice.	Identify principal concepts of each unit. Supply additional information on student practice that supplements theoretical information. Again, the information should relate directly to the concepts.
The materials do not present a combination of theory and practice.	Identify principal concepts. Verify that student practice and theoretical information are compatible and directly related to the concepts.
Materials do not provide for teacher-led learning activities.	Identify the specified learning activities. Provide guidelines so that activities can be conducted as lectures, demonstrations, questions, etc., on the part of the teacher.

Organization (cont'd)

Materials do not provide for student learning activities in groups.	Identify the specified learning activities. Provide directions so that they can be conducted in the form of group experiments, etc., on the part of the students.
Materials do not provide for individual student learning activities.	Identify the specified learning activities. Provide directions so that the learning activities can be conducted as individual experiments, etc., on the part of the students.

LANGUAGE

The style of the materials is not understandable.	Identify parts of the materials that are to any extent not clear. Rephrase them so that they are clear. If necessary, use your own knowledge of the subject or advice from your advisory group to rewrite completely.
The materials are not free of superfluous details.	Identify the essentials of all concepts, that is, information without which concepts can not be understood. Eliminate information that is not essential.
The material is not written in simple sentences.	Identify all sentences containing multiple clauses. Rewrite them according to student reading levels using one- and two-clause sentences. (There are suggestions in Module 5 on how to determine reading levels.)

Language (cont'd)

Consistent verb forms are not used.	Descriptive and instructional materials are usually written in the present tense (except historical information) and the imperative form (commands). Other tenses which are consistent with those are the future tense (*will do*) and the present perfect tense (*has/have done*). In material of this type, watch out for inconsistent forms, namely, past tenses (*did*, etc.), *would, had done.*
The materials are not written at students' grade level.	Ascertain the reading level of the students. Ascertain the readability of the materials by using the Flesch readability formula or a similar formula. Verify that materials are not written above the students' reading level. If necessary, improve the readability of the materials by substituting appropriate vocabulary.

IF a study of the students'. culture shows that:	THEN:
STUDENT ASSESSMENT	
Bilingual students (or students of limited English speaking ability) are more comfortable demonstrating their knowledge in writing.	Write multiple-choice and true-false tests at the end of each lesson. Be careful to include only the information or content of that lesson. Write multiple-choice and true-false tests at the end of each unit. Be careful to include only the information from the unit. Be concrete and specify expected results such as "must get 70 percent correct," "correctly apply three principles," "complete the task in fifteen minutes, " or "correctly identify eight out of ten items."
Bilingual students (or students of limited English speaking ability) are more comfortable demonstrating their knowledge by writing essays.	Write short essay questions on each lesson that include questions on the information from that lesson. Do the same for each unit.
Bilingual students (or students of limited English speaking ability) are more comfortable demonstrating their knowledge by practical performance.	Add evaluation activities that enable the student to present a skill using terms like *demonstrate, show, draw, prove* (see list of terms).
Bilingual students (or students of limited English speaking ability) are more comfortable demonstrating their knowledge orally.	Include assessment activities that require the student to explain, summarize, describe, identify or imitate an activity for or with fellow students.
Bilingual students (or students of limited English speaking ability) are more comfortable demonstrating their knowledge on an individual basis.	Write tests that require a student to demonstrate a learned skill to the instructor through experiment, construction, comparison, or explanation.

BEHAVIORIAL OBJECTIVES TERMS: LEVELS OF DIFFICULTY I-V

I. Recall

identify	locate	write	designate	observe
name	define	tabulate	show	note
mention	observe	place	select	inform
describe	annotate	list	imitate	detail
examine	draw	indicate	repeat	compile

II. Application

demonstrate	apply	draw	write	construct
investigate	tabulate	make	place	select
solve	study	separate	abbreviate	compile
make (a plan)	formulate	design	reform	modify
adapt	create	inform	conduct	

III. Analysis

translate	select	compare	design	create
investigate	differentiate	separate	reform	prove
organize	compute	extract	modify	suggest
analyze	calculate	shorten	adapt	conduct
classify	solve	make (a plan)	predict	criticize
specify	study	formulate	experiment	

IV. Synthesis

write	investigate	organize	compute	calculate
solve	study	compare	summarize	suggest
design	modify	adapt	predict	conduct
establish	experiment	create	prove	criticize

V. Evaluation

write	classify	compute	summarize	formulate
appraise	experiment	create	prove	criticize

Case studies

Modifier/Translator: Ilya Martínez

Ms. Martinez received a copy of a tallied Needs Assessment and was instructed to analyze the text. She analyzed the first ten lessons and the fifteenth and the twentieth. In addition, using the Flesch Readability Scale she determined that the text was written at an 8.3 grade level. When she compared the Needs Assessment chart with the Materials Analysis chart, she found that several modifications were needed.

The following are examples of the modifications that she made. You will note that the originals and the modification are presented for your perusal.

In the first case study, in order to make the format more clear, Lessons 1 and 6 were combined, making Lesson 1 an introduction to Lesson 6. You should be able to compare the original and modified texts fairly easily. You will note that in both examples changes have been made in the objectives, learning activities, and evaluation sections.

CASE STUDY I

ORIGINAL TEXT

Spray Booth Maintenance **Lesson 6**

OBJECTIVE: To learn how to maintain the spray booth.

INFORMATION:

The purpose of a spray booth is to protect the operator's health and to produce a clean paint job. The operator's health is protected by getting rid of the spray dust and fumes. This is automatically done by the exhaust system. To produce a clean paint job is another matter. There are four sources of dirt and dust that can settle on a paint job. These are:

1. The car being painted
2. The operator
3. The paint being used
4. The spray booth

The first three will be discussed in a later lesson. In this lesson we will discuss the spray booth.

If the spray booth is not properly maintained and kept clean, a satisfactory clean paint job is almost impossible. Following is a list of what must be done to maintain cleanliness in a spray booth:

1. Periodically wash ceilings, walls, and floor.
2. Wet the floor before spraying.
3. Make sure all seams and joints in the booth are sealed.
4. Check all door frames for air leaks.
5. Clean or replace all filters when dirt begins to go through them.
6. Keep all equipment such as air transformers, air

hose, spray guns, and fire extinguishers wiped clean.

7. When the fan is running do not open the doors of the spray booth.

While the fan is running the air in a spray booth is in constant motion and any dust or dirt will be carried onto the job. No spray booth will produce a spotless finish if these rules are ignored.

ASSIGNMENT:

1. What are the two reasons for using a spray booth?
2. What are the four sources of dirt in a paint job?
3. Explain how to maintain a spray booth.

THINGS TO DO:

Inspect the spray booth and find places where dust can collect.

[Reprinted from *Auto Body Refinishing* by Leonard Colucci, Camden County Vocational and Technical Schools, Pennsauken, NJ. Disseminated by State of New Jersey, Department of Education, Division of Vocational Education.]

CASE STUDY I

MODIFIED TEXT

Spray Booth Maintenance **Lesson 1**

AIM: The students will be able to demonstrate their knowledge of what a spray booth is and how to maintain it.

OBJECTIVES:

At the end of this lesson the student will be able to:

(a) Define what a spray booth is

(b) Explain what the purpose of the spray booth is

(c) Explain in her/his own words how the spray booth works with the fumes and vapors.

(d) Mention what must be done to keep good maintenance and cleanliness in the spray booth

(e) Answer the questions at the end of the lesson with 90% accuracy.

INTRODUCTION:

A spray booth is a specially designed enclosure in which spray painting can be done under safe, clean conditions. All fumes, over-spray and vapors are quickly exhausted to eliminate health and fire hazards. Filter banks or baffle plates provide uniform air flow throughout the booth. They evenly distribute the exhaust air current to cause most of the overspray to settle out before being discharged to the outside.

Objectives were modified.

An introduction has been included in order to have a more proper sequence to the following lessons.

INFORMATION:

The purpose of a spray booth is to protect the operator's health and to produce a clean paint job. The operator's health is protected by getting rid of the spray dust and fumes. This is automatically done by the exhaust system. To produce a clean paint job is another matter. There are four sources of dirt and dust that can settle on a paint job. These are:

1. The car being painted
2. The operator
3. The paint being used
4. The spray booth.

The first three will be discussed in a later lesson. In this lesson we will discuss the spray booth.

If the spray booth is not properly maintained and kept clean, a satisfactory clean paint job is almost impossible. Following is a list of what must be done to maintain cleanliness in a spray booth:

1. Periodically wash ceiling, walls, and floor.
2. Wet the floor before spraying.
3. Make sure all seams and joints in the booth are sealed.
4. Check all door frames for air leaks.
5. Clean or replace all filters when dirt begins to go through them.
6. Keep all equipment such as air transformers, air hose, spray guns, and fire extinguishers wiped clean.
7. When the fan is running do not open the doors of the spray booth.

While the fan is running, the air in a spray booth is in constant motion and any dust or dirt will be carried onto the job. No spray booth will produce a spotless finish if these rules are ignored.

HOMEWORK ASSIGNMENT:

Read the text and be able to answer the following questions orally in class:

1. What are two reasons for using a spray booth?
2. What are the four sources of dirt in a paint job?
3. Explain how to maintain a spray booth.
4. Ask your instructor for a manufacturer's catalog so that you can see the great variety of spray booths available.
5. Can you identify certain features that are included in every spray booth?

LEARNING ACTIVITY:

Inspect the spray booth and find places where dust can collect.

CASE STUDY II

ORIGINAL TEXT

Shop Safety **Lesson 2**

OBJECTIVE: To learn what safety precautions are needed in the refinishing shop.

INFORMATION:

There are about 2 million occupational injuries every year in this country. Safety experts agree that most of these 2 million injuries can be avoided if safe working conditions are provided and safe work methods are followed.

In school you learn the work habits, which you will later apply to your job. You will find that the safety training given to you in school will help to make you a better employee.

All employers are interested in efficient production. Accidents result in higher production costs, poor quality work, confusion and loss of time. Efficient production and safety go hand in hand.

In this lesson we will look at some of the hazards found in a refinish shop. The three main ones are:

1. **Fire.** In the refinish shop, the fire hazard is very great. You are working with lacquers and enamels which are very flammable.

2. **Fumes and dust.** While spraying, fumes and spray dust are released into the air. Besides being a fire hazard, these are injurious to your health.

3. **Falling.** Due to the nature of the work, the danger of slipping and falling is great. Water is used in sanding and preparing a car for refinishing, making the floor slippery in some spots.

From these three items we can develop a set of safety rules that will help to prevent accidents in the refinish shop.

1. Always disconnect the car battery while it is in the shop.

2. No open flames of any kind are permitted.

3. Always use vapor-proof lamps, drop cords and electrical wiring.

4. Avoid causing sparks of any kind.

5. Change working clothes as often as possible. Remember, they get saturated with fumes and spray dust.

6. Always wear a mask when spraying.

7. Wear safety glasses in the shop at all times.

8. Hang air hoses as soon as you are finished with them.

9. *Do not* aim spray guns or air brushes at other students. This is a most dangerous way of having fun.

The instructional objectives clearly specify to the student what is to be learned.

The objectives explain to the students how they are going to demonstrate their learning.

The objectives include a statement of criteria to be used in evaluating students' performance.

The materials are written at students' grade level and don't need to be changed.

10. Practice good housekeeping. Good housekeeping is one of the most important ways to prevent accidents.

11. No horseplay. Practical jokes and horseplay are dangerous any time, any place.

ASSIGNMENT:

1. Why should we disconnect the car battery while it is in the shop?

2. Why are vapor-proof lamps used in the refinish shop?

3. How does good housekeeping help shop safety?

CASE STUDY II

MODIFIED TEXT

Shop Safety **Lesson 2**

AIM: The students will be able to demonstrate their knowledge of what safety precautions are needed in the refinishing shop.

OBJECTIVES:

At the end of this lesson the students will be able to:

1. Mention the safety rules that should be followed in the shop

2. Explain why these rules must always be followed

3. Suggest other safety precautions that are not included in the lesson

4. Compare and associate these rules with the rules and procedures learned in the lesson before

5. Answer the questions at the end of this lesson with a minimum accuracy of 85%.

INFORMATION:

There are about 2 million occupational injuries every year in this country. Safety experts agree that most of these 2 million injuries can be avoided if safe working conditions are provided and safe work methods are followed.

In school you learn the work habits which you will later apply to your job. You will find that the safety training given to you in school will help to make you a better employee.

All employers are interested in efficient production. Accidents result in higher production costs, poor quality work, confusion and loss of time. Efficient production and safety go hand in hand.

In this lesson we will look at some of the hazards found in a refinish shop. The three main ones are:

1. **Fire.** In the refinish shop, the fire hazard is

very great. You are working with lacquers and enamels which are very flammable.

2. **Fumes and dust.** While spraying, fumes and spray dust are released into the air. Besides being a fire hazard, these are injurious to your health.

3. **Falling.** Due to the nature of the work, the danger of slipping and falling is great. Water is used in sanding and preparing a car for refinishing, making the floor slippery in some spots.

From these three items we can develop a set of safety rules that will help to prevent accidents in the refinish shop.

1. Always disconnect the car battery while it is in the shop.
2. No open flames of any kind are permitted.
3. Always use vapor-proof lamps, drops cords and electrical wiring.
4. Avoid causing sparks of any kind.
5. Change working clothes as often as possible. Remember, they get saturated with fumes and spray dust.
6. Always wear a mask when spraying.
7. Wear safety glasses in the shop at all times.
8. Hang up air hoses as soon as you are finished with them.
9. Do not aim spray guns or air brushes at other students. This is a most dangerous way of having fun.
10. Practice good housekeeping. Good housekeeping is one of the most important ways to prevent accidents.
11. No horseplay. Practical jokes and horseplay are dangerous any time, any place.

ASSIGNMENT:

1. Why should we disconnect the car battery while it is in the shop?
2. Why are vapor-proof lamps used in the refinish shop?
3. How does good housekeeping help shop safety?

LEARNING ACTIVITY:

Plan to visit a refinishing shop and observe all the implements that you find in it. Pay special attention to whether the safety rules that you learned are observed there.

EVALUATION: (To be given at the end of the unit)

Concepts are presented in a simple manner and don't need to be changed.

Depending on the culture it may be better to make most activities either individually oriented or group oriented.

Students from some cultures are accustomed to tests that require a student to demonstrate a learned skill through written answers to questions.

Achievement Test (To be answered in writing)

1. What makes horseplay dangerous in the shop?
2. What makes an air hose dangerous to play with?
3. Why are clean clothes important in the refinish shop?
4. How are lamps and electrical wiring made vapor proof? Why?
5. How can you protect yourself from fumes and spray dust?
6. Mention at least four of the most important rules and procedures for the refinishing shop.
7. Mention three ways of preventing accidents in the refinishing shop.

Equivalent or replacement terms?

Since translation is a difficult process, actual equivalents in practice may be difficult to find, and a competent bilingual translator must be relied upon to use suitable replacements if equivalents do not exist. In order to assure that the replacement is meaningful, the translator should make a reverse translation from the target language back into English thus creating a cross-reference to insure as total a translation as possible. In the case of scientific or technical language, there may be no equivalent and the English term is used; however, it will still be necessary to include parenthetical explanations in the target language. There also may be more than one equivalent requiring a decision on the part of the translator. (Again, reverse translation helps solve the problem.)

Steps in the process

It is assumed that the materials to be translated have been modified according to the criteria stated in Module 4. The modifier may or may not have been a bilingual/bicultural person. The modifier was however a person familiar with the subject matter in the instructional materials. The modified materials are now ready for translation. The translator will be a bilingual/bicultural person who may or may not be familiar with the subject matter of the instructional materials. The following steps should therefore be followed in order to assure ease and accuracy of translation:

Prior to beginning translation

☐ Acquire technical dictionaries.

☐ Acquire training manuals from the country of origin.

☐ Read modification through for understandability on the part of the translator.

☐ Go over the modified text with the modifier (person who wrote the modification).

☐ Determine the reading level of the English text. (Use the Flesch Readability Scale, for example.) You will find a description of the Flesch Readability Scale at the end of this Module.

☐ Analyze the text in terms of ideas not isolated vocabulary.

☐ Look for thoroughness of content.

☐ Look for short paragraphs and clarity.

☐ Look for short sentences giving one concept at a time.

☐ Check that individual instruction is familiar to the students.

☐ Check that measuring system is familiar to the students.

☐ Check that referents are familiar to the students.

Translation

☐ Translate the list of basic technical words to make a glossary.

☐ Maintain the reading level that was determined in the Needs Assessment; reading levels can change through the medium of translation.

☐ Check translation of technical terms by reverse translation (Target Language to English).

☐ Vocabulary should be in standard language with parenthetical explanations in the vernacular if necessary.

☐ Begin glossary as translation progresses; glossary includes: (a) English, (b) Target Language Standard, (c) Vernacular, (d) Most commonly used words.

☐ Translate ideas, not isolated concepts; but keep the meaning of what is being said.

☐ Use simple tenses while translating.

☐ Simplify the phraseology.

☐ Keep vocabulary consistent.

☐ Illustrations of control panels should be labeled in target language, but emphasize the fact that they are labeled only in English in actuality.

☐ Use behavioral terms. (See the list at the end of the Module.)

translation: The replacement of textual material in one language by equivalent textual material in another language.

Use reverse translation to assure accuracy.

During initial read-through make a list of basic technical vocabulary.

The vernacular is that langauge or vocabulary most often used by the students when speaking in their native language.

Common pitfalls to avoid in translation

Words that look alike in two languages can fool you.

Beware of words that look alike in both languages. Check them out carefully. For example, it can be easy to make the following errors:

realize: *realizar* (Spanish), to accomplish
réaliser (French), to accomplish

figure: *figura* (Spanish), face
figure (French), face

experiment: *experimentar* (Spanish), to experience.
experimenter (French), to experience.

While 'to experiment' means: *tener una experiencia* (Spanish); *faire une experience* (French).

The simplest looking words can be the hardest to translate.

Beware of simple-sounding words such as 'set' which can have a multitude of meanings in English such as: put, place, get hard, adjust.

Bearing the context in mind, look up the word 'set' in the dictionary. Choose the word you feel renders the closest equivalent. Then verify the meaning of the equivalent you have chosen by looking it up from the target language to English (reverse translation).

Make sure you are trying to translate a word or phrase that makes sense in English to start with.

Be sure to choose the accurate translation of a given term in relationship to context because one term may have several meanings in another language. For example 'gear' has three meanings in Spanish: *engranaje, velocidad,* and *rueda dentada*. In French it has two meanings: *changement de vitesse,* and *engrenage*.

If you are not sure you have chosen the correct term, translate it in reverse by looking up the word you have chosen to see if it renders the word

> **"One English term may have several meanings in another language."**

you began with. Another way to verify a translation is to look up the term in a target language monolingual dictionary.

If you look up the word 'plane' (as in woodworking) in *Simon and Schuster's International Dictionary, English/Spanish, Spanish/English,* you will find two meanings:

plane: *cepillo (de carpintero)*
garlopa

When reversing the translation you will find that *cepillo* means (1) brush, (2) carpenter's plane, and *garlopa* means large plane (for smoothing wood already planed). Depending on the context, you have found the precise term through the medium of reverse translation.

These are some cautionary statements on the task of translation. They only serve to warn you that translation is not easily accomplished. There is a bibliography of dictionaries at the end of this Module that should help you to begin to assemble a set of references.

Assessment of translation

It is assumed that a careful assessment of the translation is required because a number of inadvertent alterations can occur in the technical quality and readability of the text through the medium of translation. The technical accuracy may change and reading levels may be either raised or lowered. The translation should therefore be checked by a person who is fluent in the target language and familiar with the technical content as well. The evaluator of the translated text should consider the following:

Content

☐ Is the translation written in standard language with parenthetical explanations in the vernacular?

☐ Is the measuring system familiar to the students?

☐ Is the technical material translated accurately?

☐ Are the personal pronouns written male/female to avoid sex stereotyping?

☐ Does the translation render the same reading level as the modified text?

Organization

☐ Does the translation faithfully present the ideas of the modified text?

☐ Is one concept at a time presented?

☐ Are the ideas presented in a specific and understandable manner?

Format

☐ Is the format clear and legible?

☐ Do the format and layout match the modified text?

Language

☐ Is the vernacular language used?

☐ Is the technical vocabulary that currently in use in the student's country of origin?

☐ is the language clear and precise?

☐ Are verb tenses consistent?

☐ Is standard language used?

☐ Are sentences short and simple?

☐ Is a glossary containing English, standard and vernacular vocabularies included?

Have the translation evaluated by a third party who is bilingual.

☐ Is the reading level that of the target student population?

☐ Are analogies used familiar to students?

☐ Does the text contain consistent use of vocabulary?

☐ Is the text written in standard language with parenthetical explanations in the vernacular?

☐ Does the text contain consistent use of pedagogical terms (behavioral vocabulary)?

Illustrations

☐ Do the illustrations show multi-racial groupings?

☐ Are the illustrations written in English and the target language?

☐ Do the illustrations include male and female figures at other than traditional roles?

☐ When control panels are in English, do they remain in English in the translation?

☐ Do the illustrations show the teacher in a leadership role with students standing at a "proper" distance?

☐ Are illustrations clear and legible when labeled in two languages?

Students from some cultures "stand closer" to one another and to a teacher while students from other cultures are not comfortable with a teacher who is "too familiar."

Determining textbook readability

The Flesch formula for determining readability is included here so that you may determine the reading level of materials you use in your program on your own. The rules and procedures are as follows:

1. Take ten 100-word samples starting at the beginning of the first complete paragraph on every tenth page. Count the number of words in each sample, counting contractions and hyphenated words as one word, numbers and letters as words when they are separated by spaces.

2. Count the number of sentences in each of your samples. The last sentence counted in a sample should be that sentence ending closest to the 100-word mark.

3. Figure the average sentence length by dividing the number of words in all your samples by the number of sentences.

4. Count the number of syllables in each sample, counting syllables in symbols and figures as they are normally read aloud.

5. Divide the total number of syllables by the total number of samples.

6. Apply the average sentence length in words and the average number of syllables per sample to the Flesch Reading Ease Index Table (Figure 2) to arrive at the reading index number.

TITLE _____ READABILITY LEVEL _____

Sample	Page No.	Words	Sentences	Syllables
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
	TOTAL NO. OF:			

- Total number of words divided by total number of sentences = _____ (average sentence length).
- Total number of syllables divided by 10 (number of samples) = _____ (average number of syllables).
- Reading Index number from **Index Table** _____.
- Using **Conversion Table**, put grade level in readability-level blank above.

Figure 1. Data sheet for Flesch Formula

AVERAGE SYLLABLES PER SAMPLE

AVERAGE SENTENCE LENGTH (WORDS PER SENTENCE)	123	127	131	134	138	142	146	149	153	157	161	165	168	172	176	180	184	187	191	195	199	202	206	210	214	218	222
9	94	90	87	84	81	78	74	72	68	65	61	58	56	52	49	45	42	40	36	33	29	27	23	20	17	13	9
10	93	89	86	83	80	77	73	71	67	64	60	57	55	51	48	44	41	39	35	32	28	26	22	19	16	12	8
11	92	88	85	82	79	76	72	70	66	63	59	56	54	50	47	43	40	38	34	31	27	25	21	18	15	11	7
12	91	87	84	81	78	75	71	69	65	62	58	55	53	49	46	42	39	37	33	30	26	24	20	17	14	10	6
13	90	86	83	80	77	74	70	68	64	61	57	54	52	48	45	41	38	36	32	29	25	23	19	16	13	9	5
14	89	85	82	79	76	73	69	67	63	60	56	53	51	47	44	40	37	35	31	28	24	22	18	15	12	8	4
15	88	84	81	78	75	72	68	66	62	59	55	52	50	46	43	39	36	34	30	27	23	21	17	14	11	7	3
16	87	83	80	77	74	71	67	65	61	58	54	51	49	45	42	38	35	33	29	26	22	20	16	13	10	6	2
17	86	82	79	76	73	70	66	64	60	57	53	50	48	44	41	37	34	32	28	25	21	19	15	12	9	5	1
18	85	81	78	75	72	69	65	63	59	56	52	49	47	43	40	36	33	31	27	24	20	18	14	11	8	4	
19	84	80	77	74	71	68	64	62	58	55	51	48	46	42	39	35	32	30	26	23	19	17	13	10	7	3	
20	83	79	76	73	70	67	63	61	57	54	50	47	45	41	38	34	31	29	25	22	18	16	12	9	6	2	
21	82	78	75	72	69	66	62	60	56	53	49	46	44	40	37	33	30	28	24	21	17	15	11	8	5	1	
22	81	77	74	71	68	65	61	59	55	52	48	45	43	39	36	32	29	27	23	20	16	14	10	7	4		
23	80	76	73	70	67	64	60	58	54	51	47	44	42	38	35	31	28	26	22	19	15	13	9	6	3		
24	79	75	72	69	66	63	59	57	53	50	46	43	41	37	34	30	27	25	21	18	14	12	8	5	2		
25	78	74	71	68	65	62	58	56	52	49	45	42	40	36	33	29	26	24	20	17	13	11	7	4	1		
26	77	73	[illegible]	67	64	61	57	55	51	48	44	41	39	35	32	28	25	23	19	16	12	10	6	3			
27	76	72	69	66	63	60	56	54	50	47	43	40	38	34	31	27	24	22	18	15	11	9	5	2			
28	75	71	68	65	62	59	55	53	49	46	42	39	37	33	30	26	23	21	17	14	10	8	4	1			
29	74	70	67	64	61	58	54	52	48	45	41	38	36	32	29	25	22	20	16	13	9	7	3				
30	73	69	66	63	60	57	53	51	47	44	40	37	35	31	28	24	21	19	15	12	8	6	2				
31	72	68	65	62	59	56	52	50	46	43	39	36	34	30	27	23	20	18	14	11	7	5	1				
32	71	67	64	61	58	55	51	49	45	42	38	35	33	29	26	22	19	17	13	10	6	4					
33	70	66	63	60	57	54	50	48	44	41	37	34	32	28	25	21	18	16	12	9	5	3					
34	69	65	62	59	56	53	49	47	43	40	36	33	31	27	24	20	17	15	11	8	4	2					
35	68	64	61	58	55	52	48	46	42	39	35	32	30	26	23	19	16	14	10	7	3	1					
36	67	63	60	57	54	51	47	45	41	38	34	31	29	25	22	18	15	13	9	6	2						

Figure 2. Flesch Reading Ease Index Table

Reading Index Number	Estimated Grade Level
100 - 90	5.0 - 5.9
89.5 - 80	6.0 - 6.9
79.5 - 70	7.0 - 7.9
69.5 - 65	8.0 - 8.9
64.5 - 60	9.0 - 9.9
59.5 - 56	10.0 - 10.9
55.5 - 53	11.0 - 11.9
52.5 - 50	12.0 - 12.9
49.5 - 43	13.0 - 13.9
42.5 - 36	14.0 - 14.9
35.5 - 30	15.0 - 15.9
29.5 - 0	College Graduate

Figure 3. Flesch Conversion Table

7. Use the Conversion Table (Figure 3) to convert the index number to the estimated reading level of your material.

Figure 1 provides a data sheet for keeping track of your figures as you conduct this analysis. After you have performed this analysis a few times, you can easily train an aide or student helper to use the formula for you to help you collect this information on other written resources.

Now you are ready to duplicate your modified/translated materials in a variety of forms. Module 6 will help you decide how you wish to accomplish the duplication and what your finished materials will look like.

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BEHAVIORIAL OBJECTIVES TERMS: LEVELS OF DIFFICULTY I-V

I. Recall

identify	locate	write	designate	observe
name	define	tabulate	show	note
mention	observe	place	select	inform
describe	annotate	list	imitate	detail
examine	draw	indicate	repeat	compile

II. Application

demonstrate	apply	draw	write	construct
investigate	tabulate	make	place	select
solve	study	separate	abbreviate	compile
make (a plan)	formulate	design	reform	modify
adapt	create	inform	conduct	

III. Analysis

translate	select	compare	design	create
investigate	differentiate	separate	reform	prove
organize	compute	extract	modify	suggest
analyze	calculate	shorten	adapt	conduct
classify	solve	make (a plan)	predict	criticize
specify	study	formulate	experiment	

IV. Synthesis

write	investigate	organize	compute	calculate
solve	study	compare	summarize	suggest
design	modify	adapt	predict	conduct
establish	experiment	create	prove	criticize

V. Evaluation

write	classify	compute	summarize	formulate
appraise	experiment	create	prove	criticize

Preliminary decisions

Before you can put your modified/translated materials into a form that can be duplicated, you need to make some prior decisions about the overall appearance and composition of the work.

You want to ensure that the final outcome of the reproduction process will be consistent, attractive, and representative of your vision of an effective instructional text for bilingual students.

You want your printed text to look like it is worth all the time and talent that have been invested in modification and translation.

"You want your printed text to look like it is worth all the time and talent that have been invested in modification and translation."

To assist you, this Module begins with a discussion of what is involved in making these preliminary decisions.

Later on, we will cover, in some detail, the processes that you will go through in actually producing printed copies.

Consider the user

This point cannot be stressed too much: consider and reconsider the ultimate user of the booklet. Think about the student (and the teacher), not just from the point of view of numbers (even though it is necessary to ascertain early how many copies will be needed), but also in terms of your mental picture of how the text will be incorporated into learning activities.

How will the reader likely be introduced to the booklet? Will the booklet go home with the reader, or stay at school? Will the booklet be used to introduce concepts and principles? To guide activities? To refer to for information from time to time on an 'as needed' basis?

Put yourself in the reader's place, and think about what makes a text readable. Consider what the effect might be of a reader's being confronted with page after page of closely packed words — with the only white spaces being narrow margins at the sides and top and bottom of the page. Then, leaf through a variety of books and booklets and find examples that please you, that make you feel like reading them yourself, regardless of the content.

Notice in the examples that appeal to you how a typical page is composed. Notice how word copy and graphic designs are interspersed. Note how headings enable the reader to get oriented within the larger context. And notice especially the use of white space — the uncluttered effect of surrounding areas of printing with generous amounts of non-printed space.

You will soon be asked to make a decision on the page formats for your booklet. Remember, in making this decision, what you have observed, from the reader's point of view: What features of the printed page make the reader feel like picking up a book and exploring its contents.

Next, consider how the booklet will be treated by the user:

- ☐ Under what physical conditions will it be used?
- ☐ Will the booklet reside in the classroom or library or be carried around by the student?
- ☐ How durable will the pages need to be?
- ☐ Will the booklet be consumable — like a workbook?
- ☐ Will certain sections of the text be referred to more frequently than others?
- ☐ Are the contents likely to be changed often or updated periodically?
- ☐ Will the basic content be supplemented by materials to be added in the future?

All of these considerations about how the book will be used have implications for the decisions you must make concerning composition, binding, and production numbers of the duplicated text. For example, if the contents are to be updated or supplemented later, then looseleaf rather than permanent binding might be more appropriate.

You will need to make some preliminary decisions.

Who will be the ultimate user of the booklet?

How will the booklet be incorporated into learning activities?

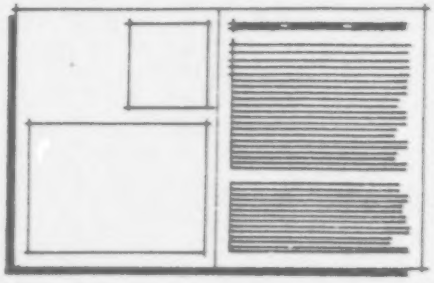
Composition of the page

The design of your page layouts should support your instructional purposes.

In our discussion of page composition, we are assuming that you already know what verbal content and graphic images will be included in your booklet. Attention can now be paid to how the content will be presented (recognizing, all the while, that sometimes the composition of a page for printing purposes requires that even final-draft content be revised or rearranged).

Generally in a book or booklet, the majority of content is presented in a form referred to as 'body copy.' 'Body copy,' then, refers to those typeset or typewritten portions of a page that are usually organized into columns and divided into paragraphs.

See the end of this Module for a sample layout form.



However, content can also be presented as captions with illustrations or photographs, as paragraphs set off by boxlike enclosures, or as excerpts, quotations, or explanations set away from the basic body-copy columns. Body copy is a primary element of composition.

Keep in mind the standard paper sizes that are available to you.

A decision that should be made early is a choice of a basic format, or page-layout design.

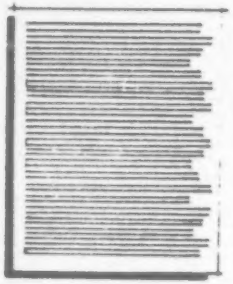
We realize that you may find yourself working against an imposed deadline that may not give you adequate time to prepare for the production of a booklet from scratch. So we have provided a sample layout format at the end of this Module that should work reasonably well.

But even if you do choose to make use of the sample form that is provided, be sure to attend to all of the decisions points mentioned in this Module.

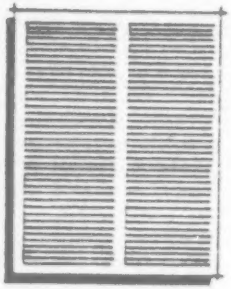
Your choice of a basic format can emerge from your consideration of the maximum amount of body copy that you want to have appear on a page. Keep in mind the intended reader as well as the standard paper sizes used in the reproduction systems available to you. (Be aware that you can trim down the dimensions of the standard paper sizes in order to get proportions more suited to the nature of your text.)

Start by considering a page that consists of all body copy — no headlines, no illustrations or photos, no breaks in the reading matter at all. The composition of such a page is most critical, because if it can be made visually appealing, then all other, more embellished, kinds of pages should be even more compelling of the reader's attention.

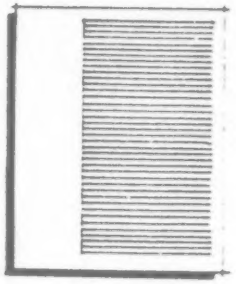
For all but the tiniest of booklets, running the body copy from margin to margin can be ruled out as an option; the text would look impenetrable.



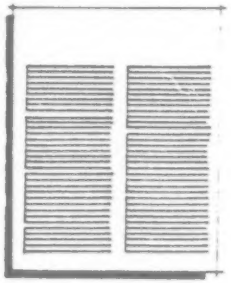
Dividing that same copy into two colums makes it appear less formidable.



Or making the block of copy two-thirds of its original width, leaving a one-third "column" of white space, is also an improvement.



Reducing the height of the columns by one-third to one-half improves the appearance as well.



Don't attempt to cram as much as possible onto each page. You may save a few sheets of paper, but you'll lose more than a few readers!

The page layout in this manual was designed for a sheet that has its longest dimension running from left to right. A two-column layout was chosen to ensure that the line lengths would not be too long

Ample white space in the margins serves to focus the reader's attention on the information

Two columns of copy look less formidable.

to read comfortably. Over two alphabet lengths (52 characters) becomes excessive. Fewer than seven words per line on the average is too narrow a line length to read comfortably.

The columns that you are reading now take little more than two-thirds of the total space available on the page, thus providing for sufficient white space on each page. Highlighting phrases can occasionally appear in the white space without destroying its relief-for-the-reader effect.

> "Don't attempt to cram as much as possible onto each page. You may save a few sheets of paper, but you'll lose more than a few readers!"

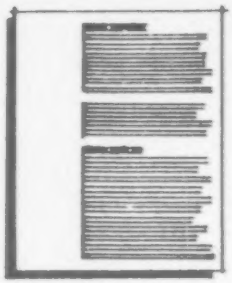
Once an arrangement is decided on, a grid can be laid out that defines where the major elements — such as body copy, illustrations, and headlines — will be consistently located.

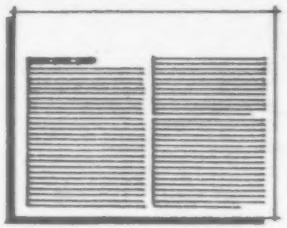
Actually, a set of guidelines will emerge as you proceed through this Module. These can act as your specifications for producing your own booklet.

Page size

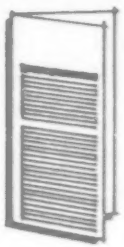
In most instances, with an eye to production feasibility, you should select a page that is obtainable from a standard-size sheet of paper, such as 8½" x 11", 8½" x 14", or 11" x 17".

Both the 8½" x 11" sheet and the 8½" x 14" sheet can receive either a horizontal or a vertical format.

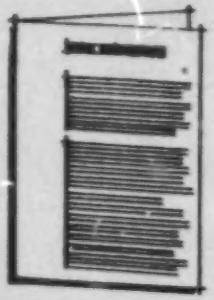




An 8½" x 14" sheet can be folded to form an 8½" x 7" booklet.



An 11" x 17" sheet can be folded to form an 8½" x 11" booklet.



If you intend to use typewritten body copy, a vertical 8½" x 11" sheet will accomodate with ease a single column covering two-thirds of the page.

Either an 8½" x 11" sheet or an 8½" x 14" sheet laid out horizontally will accommodate a two-column format with sufficient white space left over.

A folded 8½" x 14" sheet will hold one column of vertical copy on each page face, as will a folded 11" x 17" sheet.

Typewritten columns

Since most typewriters allot the same amount of space to each character in a line of type, a column of typewritten copy is ordinarily formed by not exceeding a given number of letters and spaces in a line. Therefore, a column width can be designated by *x* number of characters, such as *48* or *52*.

The amount of horizontal space that the typewriter devotes to each character is determined by the pitch of the typewriter. In older typewriters the two common pitch alternatives were called "Pica" and "Elite." Newer-model typewriters have "10-pitch" or "12-pitch" type sizes (in terms of width, not height, of character). Some typewriters can even shift between the two different pitches:

```
This is an example of 10-
pitch type produced on an
IBM Selectric II typewrit

This is an example of 12-pitch
type produced on an IBM Selec-
tric II typewriter.  This is a
```

If a typewriter makes its impressions by means of a movable ball or element rather than by the striking of separate keys, the style of the type can be changed by changing to a different element.

Within the same column of copy, the pitch of the type should remain constant, but the style of the typeface may change, as in the use of an italic typeface for emphasis.

Composing columns of copy is easy.

Some typewriters give you a choice of character width. . .

Or even a choice of typeface style!

Bilingual options

You can choose from among several ways of printing in two languages.

If you want to show both languages on each page of a bilingual text, a horizontal format with a two-column layout is recommended — one column for each language.

To further differentiate the languages, you can use two different type styles.

Or you might distinguish the languages from each other by using two different type pitches — 10 pitch for one language and 12 pitch for the other. This last choice might entail a difference in column width as well, in order to make the two columns of content 'come out the same in the end.' If one language is wordier than the other — tends to use more words to say the same thing — the wordier language should appear in the smaller of the two pitches (in 12-pitch type).

When columns of two different languages on the same page, containing the same content, come out slightly different in length —even though you have set the less-wordy language in a larger type or put it in a narrower column — maintain the top margin of the page so that the difference in column length shows only at the bottom of the page.

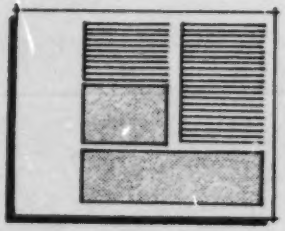
This is an important principle of page composition worth repeating: maintain a uniform margin at the top of all pages of a book or booklet. (An exception to this principal may be made for the first page of a chapter, but then all chapter openings should be treated uniformly.)

Language distinctions through contrasting typefaces or pitches may also be made when you use a one-column format and place the two languages on opposing pages.

A third way of making the distinction is through a change of color of printing ink, assuming that you have access to commercial-quality printing. If you should decide to use two colors, your preparation of copy and the printing itself will be easier if you use the single-column format, with the two languages on opposite pages. That way only one ink color will be imprinted on a side of a sheet of paper.

Placement of illustrations

Not only body copy, but also graphic illustrations or photographs should have some regulations that govern their placement on the page. Matching the width of an illustration to the width of a single column, or the combined width of both columns, keeps the page neat and composed. The heights of illustrations may vary, within the ultimate limits of the column height.



Titles

The other major elements to consider in page layout are headlines, titles, and other display lettering.

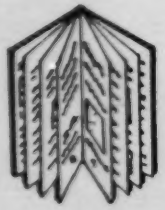
Seldom is large display lettering done free-hand anymore, unless one has a reason for wanting the appearance of hand lettering. Since the advent of pressure graphics, the page designer can literally rub on each letter needed from a sheet of specially printed alphabets, available from art supply stores. The selection among styles and sizes is extensive. However, one style should be selected and used consistently, and the style that is selected should be compatible with the style and size of the body copy.

Numbering of pages

A final consideration is the page numbering. Traditionally, right-hand pages are odd numbered, and left-hand pages are even numbered.

The top outside corner or the center of the bottom margin of the page are the most common locations for page numbers.

If your booklet is assembled from pages that are folded and then saddle stapled (stapled in the center along the fold), page 5 may appear next to page 16 on the printed sheet. To avoid confusion in such cases, it is wise to construct a dummy copy of your booklet at an early point in the production cycle. A dummy is a mock-up, which can be much smaller than the actual booklet. It reflects the relationships between the dimensions



of the booklet and gives rough indications of what the content of each page will look like, including the page numbers.

Let a dummy be your guide.

What you know so far

At this point you should have some fairly clear notions about what the booklet you plan to produce will be like: The number of copies that are needed. The size of the sheets to be printed. In general, how the pages will be laid out. Whether verbal copy will be typewritten or typeset on commercial equipment.

There are some decisions, however, that should be deferred until later on in your review of this Module — decisions that will have an impact on the amount of effort necessary for preparation and production of your booklet.

Decide where page numbers are to be located.

How to prepare camera-ready copy

We will turn our attention now to the procedures for preparing what is known as 'camera-ready copy.' This term refers to finished layouts of all the page elements (body copy, illustrations, photographs, and display lettering) in a form that is ready to be reproduced.

The elements of each page are pasted onto a stiff white artboard in the final arrangement that is to appear on the reproduced page. A completed board is called a 'paste-up mechanical,' or simply a 'mechanical.'

A mechanical is considered camera-ready when it has been checked for accuracy and is ready to be sent to a printing or reproduction operation.

Whether you actually do the preparation of the mechanicals for your booklet or supervise their execution, it is important for you to understand the procedures that are followed.

A carbon film typing ribbon and clean keys should produce crisp copy.

When to depend on a dummy

The person doing the final paste-ups will need to have at hand both a set of specifications and a dummy copy of the booklet.

The dummy copy of the booklet shows in rough form how each of the pages will be composed. The dummy also shows how pages relate to each other if they appear on the same sheet of paper. Before turning the dummy over to the person working on the mechanicals, study it and the specifications that go with it carefully, to make sure that everything will fit. Making a change in the dummy is easy compared to making changes on completed mechanicals.

Producing typewritten body copy

Camera-ready copy must be sharp and clean to reproduce well. Because the quality of typing is crucial to the quality of the outcome, the better the typewriter, the better the copy that will be produced — all other things being equal.

Well-adjusted electric typewriters normally produce better-quality images than manual machines. A sharp image is produced by a clean key or element which is adjusted to strike evenly against the correct kind of ribbon. Worn-down keys should be replaced. All keys or elements should be immaculately clean.

A reproduction-quality carbon film ribbon — NOT a fabric ribbon or a correctable-type film ribbon — should be used. A carbon film ribbon runs through the typing machine only one time: each strike against it leaves a fresh sharp-edged carbon image on the surface of the paper. (A

fabric ribbon, on the other hand, would leave a fuzzy-edged ink impression unsuitable for reproduction.)

Correcting errors in typewritten copy

Errors are not calamities. They are almost always reversible. In fact, it's easier to correct an error in a way than won't be perceived on a reproduced copy than it is to completely conceal an error on an original.

A simple way to correct an error in a letter or two of typing is to use correction film. A small sheet of the film is used to lay an opaque white coating over the incorrectly typed letter. Then, the film is removed and the correct letter is typed into the same space.

Another way to correct small errors in typing — as well as errors in artwork — is to apply an opaque white fluid to cover up the error. After a short drying time, the corrections can be made.

Sometimes a whole word or line must be corrected. This kind of extensive coverage can be achieved by using correction tape. Typeover quality is almost as good as the original typing, but you may run into difficulties with xerographic reproduction of tapeovers.

What do you do if several lines, or even a whole paragraph must be corrected? Don't despair. You can simply prepare a new block of copy on a separate sheet, cut it out, and paste it into place over the section of copy to be changed. We deal with paste-up techniques later on in this module.

Preparing the mechanical

The base for your mechanical is a piece of sturdy, smooth-surfaced white artboard. Ask your local art supply dealer to recommend a good brand for your purpose.

The artboard should be cut to a size a few inches larger on both dimensions than the final sheet size of your booklet.

Using drafting tape at the corners, secure the artboard to a smooth working surface, such as a table or drawing board. (Drafting tape is a kind of tape that will do minimum damage to your artboard when tape is removed after the layout is completed.)

On the illustration board lightly mark in the outline of the final sheet size, using a light blue line. Either a pencil or a fine-point felt marker of 'non-reproducing blue' can be obtained from an art supply house. The special blue will not show up on copies made by certain xerographic or offset-printing processes. Take care that your guidelines are straight and square or parallel relative to one another. And check their dimensions to ensure accuracy.

Drafting tools — such as a T-square, a triangle, and a parallel glide — can help you lay down your guidelines precisely.

It's easy to correct errors in typing or artwork.

Do your layouts on white artboard.

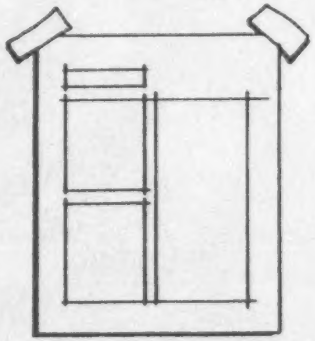
Mark guidelines in a non-reproducing light blue.

Drafting tools are useful for this phase of preparation.

Non-reproducing blue lines on your typed copy are matched to the guidelines on your artboard.

Indicating the positions of elements

After the page outline is completed, the locations for all elements to appear on that page are also marked with non-repro blue lines. Provisions are made for borders at the tops, bottoms, and sides of columns of type, for headlines, and for artwork and photographs.



A basic set of positioning lines is used to align each column of type. At the beginning of each column of type, a vertical line on the artboard indicates exactly where the left-hand edge of the type (not the paper cut-out to be pasted up, but the type itself) will appear. A horizontal line indicates the bottom edge of the first line of type in the column. On the artboard these lines, which are at precise right angles to each other, extend slightly beyond the area that will be filled by the pasted-up column of type.

Many of the guidelines that indicate how copy will be positioned will be the same on a number of your mechanicals. Therefore, the first artboard that is laid out sets the standard for the other boards. It should be checked to guarantee that its meets all specifications.

Pasting up the copy

Next the elements of copy are pasted onto the layout board.

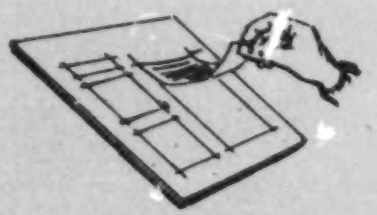
Body copy that has been typed (or typeset) and proofread is secured first. But before you cut it out and paste it up, you should rule in your positioning lines: a vertical non-reproducing blue line at the left-hand edge of the type, and a horizontal line at the bottom edge of the first line of type.

This is an example of typed body copy. Non-reproducing light blue lines (indicated by gray lines here) will be matched to similar lines on the artboard.

Each of these lines should extend slightly beyond where the copy will be cut out. In a few moments, they will be matched up with the positioning lines on the artboard.

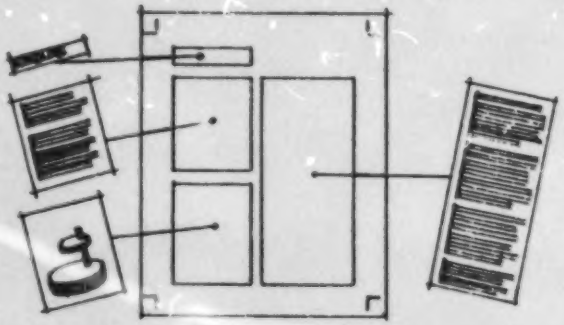
Use a sharp cutting instrument, such as a #11 X-ACTO knife, to cut around the copy to be pasted up. The cut lines do not have to be precisely square or parallel to one another; they will not show when the mechanical is reproduced. Allow a slight margin of paper around the type, an eighth of an inch or so on all sides. A piece of glass makes a convenient work surface when one is cutting out copy elements. A couple of layers of cardboard will also do.

Apply rubber cement to the entire back of the cut-out, and allow the cement to dry for a few seconds. (Try to keep the rubber cement from seeping onto the front surface of the cutout: it may damage the images there, especially typed images produced with a film ribbon.)



Position the cutout copy on the artboard, aligning the positioning lines on the cutout with the positioning lines on the artboard. Press the cutout firmly into place. Use a rubber-cement "pick-up" square to clean off any traces of cement that linger around the edges of the cutout.

Continue pasting up the mechanical. Each element in turn is ruled with positioning lines, trimmed to size, cemented, and secured in place.



Special treatment for photographs

Artwork is handled in the same fashion as body type. However, photographs pose special problems. Some xerographic-copy processes produce fair copies directly from original photographs, but most reproduction processes cannot.

What you can do is convert the photo into a form that can be readily reproduced. Have a "Velox" (also called a "P.M.T. halftone") copy made of your original photograph. It will be composed of thousands of small dots. The densities of the dots will convey the grey tones of the original photograph, with greater densities for the darker tones and lesser densities for the lighter tones.

You can convert a photograph into a dot pattern that can be reproduced.

(Looking closely at a picture in a newspaper will give you an idea of what a Velox print is like.) The Velox print can be pasted on the mechanical in the same fashion as body type or artwork.

There are other ways of preparing photographic copy for reproduction, but we do not cover them here because they are much more expensive and sophisticated. Any commercial printer can brief you on what would be involved if you need top-quality reproduction of photographs.

Titles and headings

Larger sizes of lettering can be rubbed directly onto the layout board.

Headlines and display type are usually in larger sizes and bolder faces than body type. If they are composed from dry-transfer lettering, they can either be rubbed directly onto the layout board, or they can be composed on another sheet of paper, from which a cutout is made to be pasted up onto the mechanical.

The final touches

The finished mechanicals should be handled carefully. . . they represent a lot of creativity and effort.

Piece by piece, the elements of copy are positioned and pasted up until the mechanical is completed.

After a final proofreading and check against the dummy, any excess rubber cement is removed and the clean board is covered with a sheet of tracing paper or translucent vellum, to protect the finished layout. Drafting tape can be used to secure the overlay sheet to the mechanical, horizontally along their top edges. Special instructions to the printer can be written on the vellum cover sheet.

> **"A lost element might not be missed until after printing, when it is too late to replace it."**

A final note about protecting the mechanical: If the layout board is flexed too often during handling, the elements can shift in position or fall off. Not nice. A lost element might not be missed until after printing, when it is too late to replace it.

How will you reproduce?

A decision must be made about the method to use to reproduce the booklet in the quantities needed. Three processes will be considered here. They are xerography (copying by means of electrostatically charged particles), quick-copy offset printing (using a paper printing plate optically produced), and commercial offset printing (using metal printing plates).

The third process is most complex and most expensive — and it produces a superior product. While commercial offset printing is obviously desirable for long-run production of high-quality copies, we recognize that most modified/trans-

lated instructional materials will go through tryout periods and field testing before they are reproduced on a grand scale. Accordingly, most of our descriptions of reproduction processes will deal with the first two methods, with only a glancing reference to the more complex approach.

Xerography

Xerography makes a copy by optically scanning an original and causing electrostatic charges to build up on a special cylinder. As a sheet of paper passes around the cylinder, the electrical charge of the paper is affected in such a way that it attracts particles of graphite to the areas where the charge is the greatest. Lines and letters are formed.

Then the particle-laden paper moves to a heater, where the particles are fused onto the sheet. A "printed" page results.

Grey areas are reproduced because they attract fewer particles than black lines. That is why photographs are reproduced by xerography with some clarity (though not as sharply and vividly as through most printing processes).

Large solid black areas, however, tend to reproduce xerographically in lighter tones than the original. Broad bold lettering, thick lines, and solid black areas do not fare well.

Colored lines or areas may reproduce as unattractive dirty-grey tones. (While color xerography is available in some places, its cost may be prohibitive.)

Because black-and-white xerography is extra sensitive to what is on the original copy, some xerographic machines may reproduce light-blue guidelines and the edges of pasted-up copy on your mechanicals. The most sophisticated xerographic copiers have controls for "paste-up suppression," but the trade-off in using them can be a loss of sharpness in the content copy that is reproduced.

The advantages of xerographic copying include speed in processing from the original, a relatively low cost per image (especially in short runs), and the capability of reproducing photographs directly.

Disadvantages include the difficulties in reproducing pasted-up copy mentioned earlier, a mediocre appearance (greying out of images and fuzziness of lines) — especially when poorly maintained machines are used, and excessive costs for long-run production quantities.

Commercial-quality offset printing

The principal reason that commercial-quality offset printing produces better results than quick-copy printing is that a superior plate-making process is used. The process begins with a special camera which produces a high-quality negative. This negative records even the finest of the details present in the original copy (the mechanical). The negative, in turn, is used to

Most quick-copy centers, like Henry Ford, offer any color as long as it's black.

Each speck of dirt or flake of rubber cement that hasn't been cleaned off will be printed on every copy — at no additional charge!

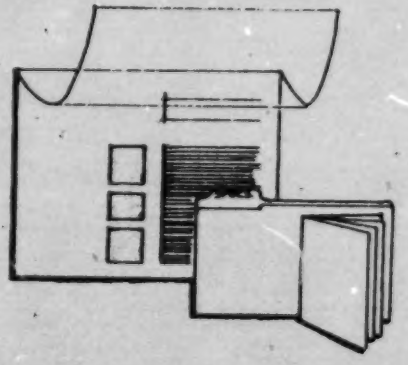
make a printing plate capable of relaying the finely detailed image to paper.

As we said earlier, we are assuming here that less sophisticated copying methods will be more appropriate to your project than commercial-quality offset printing.

Quick-copy offset printing

Quick-copy offset printing is comparable in price with xerographic copying for all but the shortest of runs (fewer than 100 copies per original).

The sharpness of image is decidely better since ink — instead of the coarser graphite particles of xerography — is applied directly to the paper. The sharpness of image in the quick-copy field is best when a special process camera is used to produce the paper printing plate. (Some quick-copy plates are made by direct-contact methods instead of by means of an optical camera; they produce a fuzzy image. We do not advocate using that process.)



A checklist

When you are ready to start the printing cycle, here are some key things to have ready:

- ☐ The layout dummy (complete and accurate)
- ☐ A list of specifications that include:
  - ☐ The size, color, and type of paper
  - ☐ The color or colors of ink
  - ☐ Whether printing is to be done on one side or both sides of a sheet
  - ☐ The quantity of finished sheets for each original
  - ☐ Cutting instructions, if any, for final sheet sizes
  - ☐ Instructions for collating, if applicable
  - ☐ The date you expect delivery
  - ☐ Your name and phone number(s)
- ☐ The mechanicals (clean and covered).

You can expect the quality of quick-copy offset printing to be quite good. It is even possible to obtain a very professional-looking product by this method if you are able to have body copy typeset rather than typewritten.

Collating the copies

After the copy center or the printer has finished reproducing your booklet pages, you or someone else will be faced with the task of putting the pages in sequential order and collating each booklet. This is no small job.

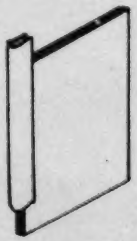
Collating the copies is no small job.

Some xerographic machines are capable of collating sets of pages during the duplication process (usually up to 50 copied sets). Some quick-copy offset printers also provide a collating service at extra cost.

You may want to let George do it.

Whether you take on the job of collating yourself or give it to someone else, you'll find that the dummy will come in handy again. The dummy is useful for verifying the correct order of the pages.

If the pages need to be removable, a plastic clip strip can be slipped along the left-hand edge of the booklet. Clip strips are neat in appearance, but they do not stand up well to rough handling.



Options for binding the copies

Once the booklets have been collated, some type of fastening or binding is called for.

There are several alternative ways to bind together the pages of your booklet.

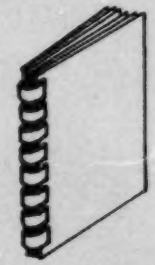
The simplest way to hold pages together is to staple them at the upper left-hand corner or along the left-hand edge. This alternative provides the least-finished look, but it may be enhanced by adding a fabric tape along the spine. A disadvantage of this form of binding is that when it is open, the booklet will not lie completely flat.

A more durable binding method that still allows for page removal is to holepunch the pages and either provide them in a ring binder or fasten them together with metal-prong fasteners. If holepunching is used, allowance for it should be made on the original layout format. Printers can

Follow these guidelines and you should get professional results!

holepunch stacks of paper at a time; hand-operated punches usually accommodate no more than 3-4 sheets at once.

A popular method for binding booklets is to slot-punch the left or top edge and insert a plastic comb or spiral binding. Spiral binding allows the booklet to lie flat when open; it does not require the heavy cover associated with ring binders; and because numerous curved prongs hold the pages, the pages seldom tear loose accidentally.



Folded booklets can be saddle stapled. Because their pages are printed in spreads (two pages on each side of a sheet), layouts must provide for the fold, and pages must be arranged so that they will align properly in the final form.

One final method of binding will be mentioned. A booklet can be bound to resemble a paperback book by a method that heat-fuses the pages to the back spine of a specially treated booklet cover. The assembled booklet is placed spine-down in a heating trough that causes the adhesive spine backing to soften and encase the pages. After cooling, the booklet is ready for use.

Choices among the various binding techniques that are available have implications for the style of cover to be used, the weight or thickness of the individual pages, and the style of page layout.

Professional results

If you follow the guidelines given here, you should get professional-quality instructional materials to use in your bilingual vocational education program — materials that attract the student's attention and enable learning.

SAMPLE LAYOUT FORM

supplemental information

Major headings in transfer type

EACH COLUMN CAN CONTAIN 10-PITCH TYPING:

35 characters/line

40 lines of type in each column

EACH COLUMN CAN CONTAIN 12-PITCH TYPING:

42 characters/line

40 lines of type in each column

How well do the materials work?

The last step in the process of modifying materials is field testing, seeing how well the materials work with a representative group of bilingual students. In the field test, you must look for two things: how well the materials suit the students they are intended for, and how effective they are as instructional materials.

From the field test, you can get information that you can use for revising your materials, where necessary.

The field test, therefore, consists essentially of two parts: (1) collection of information from use of bilingual materials in the classroom by students and teachers and (2) analysis of the information for revising the materials.

Organizing the classroom field test

You are aiming, at this stage, at getting two kinds of information: how well your modified bilingual materials suit the students they are intended for (how well the materials match the needs assessment), and how well students perform using the materials as an instructional resource.

The second category is easy to assess by use of pre- and post-tests, which as the names imply measure students' knowledge before and after the study of an instructional unit.

The first category requires more elaborate preparation.

How well do the materials match the Needs Assessment? To judge how well your materials match the needs, you require feedback from your users in a form that corresponds to the categories and dimensions of the Needs Assessment.

This Module contains a repeat of the Parents/Students Needs Assessment questionnaire (a slightly simplified form of the Teachers/Administrators questionnaire) and also a corresponding Materials Analysis questionnaire. Before the students and teachers work with your materials, get them to answer the Needs Assessment questionnaire.

After they have completed working with the materials, have them complete the Materials Analysis questionnaire. This approach ensures that they will be aware of the kind of information that you are looking for and will help them to organize their opinions, so that their responses to the Materials Analysis questionnaire can be accepted as a dependable body of information.

You should also provide space to allow the students and teachers to give any additional comments or suggestions that they may feel are appropriate.

Some practical points to remember. Make sure that the teacher who is conducting the trial use of your materials is well prepared, so that you get no responses that may indicate unnecessary revisions.

Also, you yourself should be unobtrusively present during the trial use to observe any unexpected problems that may arise. Such observations will be part of your feedback. The following are some of the kinds of questions you should ask yourself as the field test proceeds:

Do the materials meet the stated goals?

- ☐ Do students request clarification of materials?
- ☐ Do students show signs of being bored?
- ☐ Do students take unduly long time to complete certain sections?
- ☐ Do students take unduly short time to complete certain sections?
- ☐ Are students showing signs of lack of comprehension?
- ☐ Are students showing unexpected amusement at sections of the material?
- ☐ Do parts of the materials provoke a hostile reaction among the students?

Students' feedback allows you to check your planning.

- ☐ Is the teacher doing anything to exclude bilingual students from the teaching process?
- ☐ Are extraneous factors affecting the progress of the field test?

This, of course, is not an all-inclusive list of possible unexpected problems.

You should organize the field test so that there is ample time for (1) answering the Needs Assessment questionnaire by the teachers and students, (2) knowledge or performance pre-test, (3) use of the bilingual materials for teaching, (4) knowledge or performance post-test, and (5) completion of the Materials Analysis questionnaire by teachers and students.

from the study of teaching materials. In practice, you may find that the field test may produce variations from the ideal pre and post-test scores, indicating the need for correcting some omissions, inaccuracies, lack of sequential presentation and so forth. The pre- and post-test scores will point out any such faults in the materials by the following symptoms:

FIELD TEST PROCEDURE

Analysis of field test feedback

The field test of your materials has given you information on student performance and on the match of your bilingual materials to the Needs Assessment. These two sets of information are ideally interdependent, but it will probably be more practicable to deal with them separately.

Theoretically, post-test scores should be significantly higher than pre-test scores, indicating that students have gained knowledge or proficiency

☐ Generally low overall post-test scores. *(Check materials for clarity and logical sequence of presentation; check for consistency with students' prior knowledge.)*

☐ Generally low post-test scores relating to a particular aspect of the materials. *(Check the relevant part of the materials for clarity and its relationship to the sequence of presentation; check for consistency with students' prior knowledge.)*

☐ Distinctively low post-test scores on the part of a well-defined sub-group of students. *(Include additional materials to provide for any comparative deficiency in that group's prior knowledge.)*

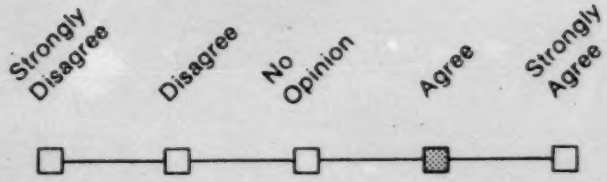
☐ Post-test scores not significantly different from pre-test scores. *(Your materials either do not contain sufficient information or are too difficult for the students.)*

You should remember, however, that this list can serve only as a very general guide. In making any necessary revisions to your materials, you should be prepared to deal with shortcomings in any of the categories of the Needs Assessment and Materials Analysis; and at this stage in your materials development it should not be too complicated to pinpoint any deficiencies. (You should also remember the possibility that shortcomings in post-test scores may be unconnected with your materials, being due instead to teaching procedures or other factors involved in the field test. This is another reason for being present at the field test to make observations.)

The results of the Needs Assessment questionnaire completed by the students and teachers, and also the results of the Materials Analysis questionnaire, should be tallied and compared. You will probably find at this stage that any mismatch will be in categories where there is room for variation, such as reading level, assessment style, need for illustrations, etc. Such a mismatch will probably look something like the following example questionnaire scales:

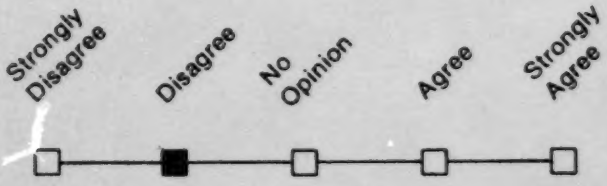
NEEDS ASSESSMENT QUESTION:

Content should depend heavily on illustrations.



MATERIALS ANALYSIS QUESTION:

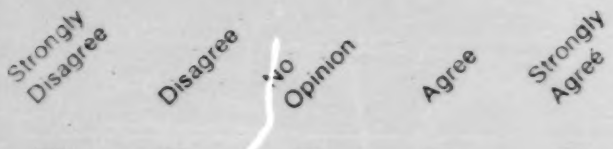
Content depends heavily on illustrations.



In such a case, you may consider the possibility of adding explanatory illustrations and diagrams.

Further information for revision of the bilingual materials may arise from the students' additional comments. Although such information may not precisely fit any of the dimensions of the Needs Assessment, it may draw your attention to some important but so far unconsidered factors involving the need for revision of your materials.

NEEDS ASSESSMENT QUESTIONNAIRE



Content

Contents should be presented in a simple manner.

Complex concepts should be broken down into a number of simple concepts.

Content should depend heavily on written text.

Content should depend heavily on illustrations.

Content should contain balanced proportions of written text and illustrations.

Analogies and examples used in the materials should be familiar to the students.

Students should be accustomed to textual materials with few illustrations.

Students should be accustomed to materials with many illustrations.

Organization

The order of the materials should be sequential.

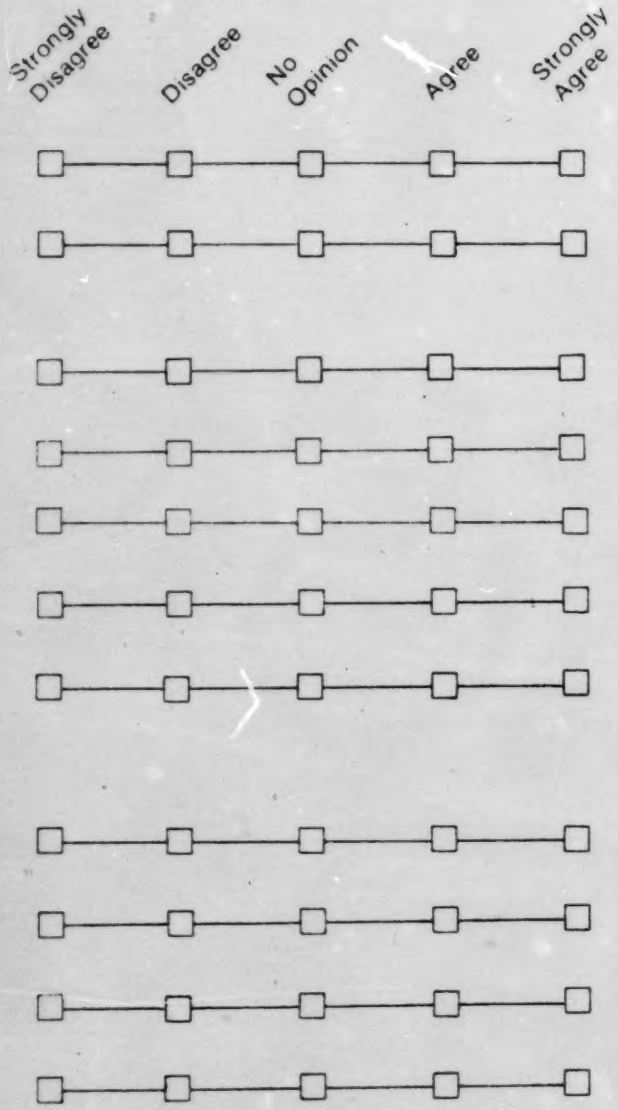
The emphasis of the materials should be on theory.

The emphasis of the materials should be on practical aspects.

The materials should provide for teacher-led learning activities.

7.5

NEEDS ASSESSMENT QUESTIONNAIRE (cont'd)



Organization (cont'd)

Materials should provide for group student learning activities.

Materials should provide for individual student learning activities.

Language

The style of the materials should be understandable.

The materials should be free of unnecessary details.

The materials should be written in simple sentences (simple = 1 main clause; complex = 2 or more main clauses with or without dependent clauses).

The materials should be written with consistent verb forms.

Students should be able to read at least at grade level.

Illustrations

The illustrations should be placed next to textual materials.

The illustrations should be uncluttered.

The illustrations should be colorful.

The illustrations should have multi-racial representation.

7.7

Definitions of words

content(s): the topic or matter in a field of study

illustrations: drawings, photographs, pictures, charts, etc.

text: textbook used in course

analogy: comparison of two things that are similar

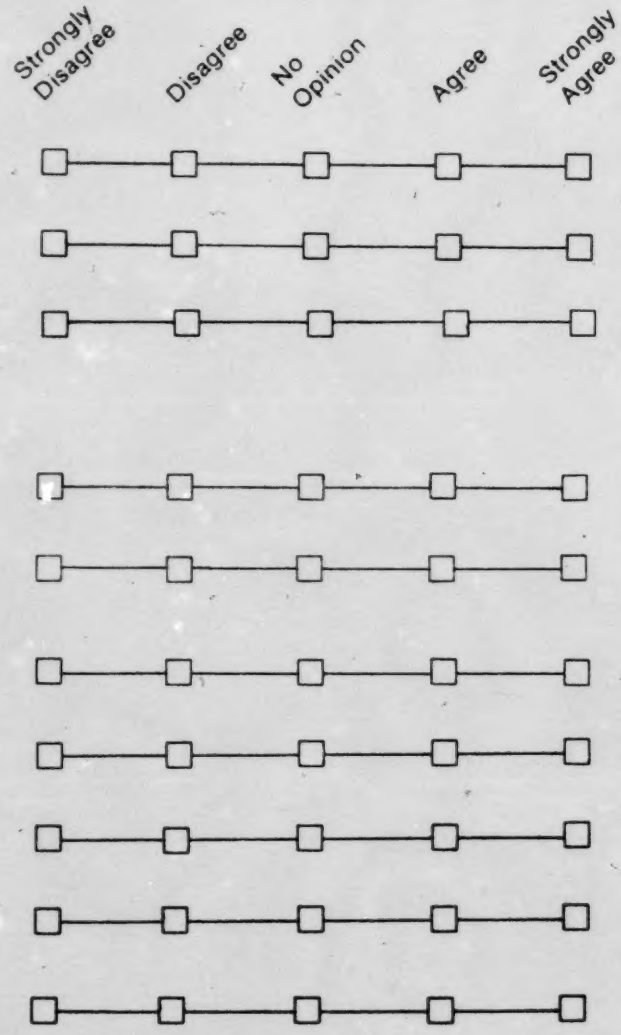
sequential: following in order

textual: related to textbook of course

format: style of organization or arrangement

style: a way of expressing thoughts in language.

details: items or elements that make up the learning materials



NEEDS ASSESSMENT QUESTIONNAIRE (cont'd)

Illustrations (cont'd)

The illustrations should be appealing according to the students' culture.

The illustrations should contain colors that are acceptable in the students' culture.

The illustrations should show male/female students at other than traditional roles.

Format

The way it is represented should be readable.

The layout of the materials should not be distracting.

Activities

The activities should be project oriented.

Activities should clearly explain to students what they are to do and how to use what has been learned.

The activities should be presented in an understandable way.

The activities should be student oriented.

The activities should be clear to students.

MATERIALS ANALYSIS CHART

Objectives

Objectives are consistent with content.

Instructional objectives clearly specify to the students what is to be learned.

Objectives explain to the students how they are going to demonstrate their learning.

Objectives include a statement of criteria to be used in evaluating students' performance.

Objectives are stated in behavioral terms.

Content

Concepts are presented in a simple manner.

Complex concepts are broken down into a number of simple concepts.

Content depends heavily on written text.

Content depends heavily on illustrations.

Content depends heavily on either written text or illustrations.

Organization

The units of the curriculum are presented in logical succession.

7.11

MATERIALS ANALYSIS CHART (cont'd)

Organization (cont'd)

The emphasis of the materials is on theory.

The emphasis of the materials is on practice.

The materials present a combination of theory and practice.

Materials provide for teacher-led learning activities.

Materials provide for group student learning activities.

Materials provide for individual student learning activities.

Language

The style of the materials is understandable.

The materials are free of superfluous details.

The material is written in simple sentences.

Consistent verb forms are used.

The materials are written at students' grade level.

Illustrations

The illustrations are appropriately placed in relation to textual materials.

7.13

MATERIALS ANALYSIS CHART (cont'd)

	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Illustrations (cont'd)					
The illustrations are visually attractive.	☐	☐	☐	☐	☐
The illustrations are uncluttered.	☐	☐	☐	☐	☐
The illustrations are colorful.	☐	☐	☐	☐	☐
The illustrations have multi-racial representation.	☐	☐	☐	☐	☐
The illustrations include both female and male figures at all occupations.	☐	☐	☐	☐	☐
Format					
The format is readable.	☐	☐	☐	☐	☐
The layout of the materials is not distracting.	☐	☐	☐	☐	☐
Activities					
The activities are project oriented.	☐	☐	☐	☐	☐
The activities clearly explain to students how to put their knowledge of content in effect.	☐	☐	☐	☐	☐
The activities are presented understandably.	☐	☐	☐	☐	☐
The activities are student-oriented learning activities.	☐	☐	☐	☐	☐
The activities are clear to students.	☐	☐	☐	☐	☐

7.15

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analysis

The compilation and assessment of data on the characteristics of learner materials.

bilingual

Speaking or having knowledge of two languages. In practice there are degrees of bilingualism ranging from an equal and complete knowledge of two languages in speaking, reading, and writing to an incomplete speaking knowledge of two languages with no reading or writing ability in either. *Also* involving or making use of two languages (see **bilingual education**).

bilingual education

A term applied to a variety of educational situations, usually involving dominant and minority languages to be, respectively, learned or preserved. In the context of this project, bilingual education is viewed as a pragmatic means of helping students to learn required skills in their own language while they are in the process of acquiring the dominant language (English); and incidentially contributing to the preservation of minority students' own language.

cultural

Relating to the distinctive customary beliefs, social forms and material traits of social groups (national, racial or religious).

evaluation

The assessment of the characteristics and suitability of curriculum materials by means of feedback. Evaluation is commonly thought of as having two aspects: formative evaluation which "is to help focus upon what is necessary for movement toward" a desired goal, and summative evaluation which "is directed toward a much more general assessment of the degree to which the larger outcomes have been attained" (Bloom, Hastings, and Madaus, 1971). In the context of curriculum development, then, formative evaluation is the evaluation of materials (by teachers, learning specialists, etc.) while they are in the process of development, leading to the incorporation of changes and improvements; while summative evaluation is the use of feedback from a field test to make final modifications in the materials. (See **feedback**.)

feedback

Information obtained at any stage in the process of curriculum development and used to modify and improve materials. (See **evaluation**.)

limited English speaking ability

A self-explanatory term; there are, however, degrees of limitedness to be found in individual speakers, ranging from a considerable degree of English-speaking ability to almost none, possibly combined with limited literacy in a speaker's own language. (See **bilingual**.)

materials

A general term denoting all forms of information sources used in the teaching/learning process; in the context of this project, the term is restricted to written instructional materials used by students to acquire knowledge of a particular skill.

modification

Changing the characteristics of learner materials so as to achieve the desired form prescribed by the Needs Assessment (see below).

needs

A statement of the desired form of learner materials intended for a particular student group identifying the discrepancy between existing and desired materials.

needs assessment

As used in these Modules, Needs Assessment refers to the process of determining the desired form of learner materials for a specific student group; it is the first step in determining the discrepancy between existing and desired materials. By using appropriate informants, an inquiry is made into the students' previous learning experience and their cultural backgrounds. The results of this inquiry are then tabulated to arrive at a statement of needs.

objective

A statement of purpose or goal of an activity. In the context of curriculum, objectives include guides toward the attainment of the goal, including, but not limited to, a statement of what students will learn, how they will demonstrate their knowledge, and the minimum level of performance.

vocational education

Education designed to provide skill in a particular occupation or group of occupations, and also those aspects of general education related to particular occupational skills.

Appendix I

General population profiles

Since the Bilingual Vocational Education Curriculum Development Project at New York University concerned itself with the needs of Hispanic students (a great percentage of whom are Puerto Rican) and Haitian students, specific profiles were prepared for those populations. The preparation of a profile of this type involves a certain amount of stereotyping but it was determined that in order to discuss the needs of students from other cultures, it was necessary to use some stereotypical generalities.

HAITIAN CHILDREN

by Joseph Thévenin

In order to give a profile of Haitian children in the United States one must consider the circumstances which brought them to the United States. Two decades ago the number of Haitian children in this country was insignificant. During the 1950's there were scarcely one hundred Haitian families living in the entire United States with the majority concentrated in the New York area. Most of the Haitians who came to America during the fifties were predominantly businessmen, industrialists, shop owners and tradespeople. The rest were students and some tourists.

The number of Haitian immigrants in the United States increased substantially in 1958. A large number of Haitians fled the political repression

and economic chaos in their country. The only other time that Haitians had left their homeland to settle elsewhere was in 1930 when thousands of workers migrated to Cuba and the Dominican Republic for the sugar-cane harvest. Haitians came to the United States with their wives, children and relatives, leaving everything else behind.

Between 1961 and 1970 another migration occurred. The records of the U.S. Department of Immigration and Naturalization Service show that about 51,000 Haitians entered the United States as immigrants during that period. It also shows that an additional 254,000 entered the country with various kinds of visas, namely tourist, business, and student visas that same period.

A total of about 317,000 came to the United States during the period 1958-1970. In addition there are those persons who entered the country in unspecified ways via Nassau, Canada and Mexico, and the new generation of Haitian - Americans who were born in the United States and cannot be classified as immigrants or visitors. Thus, the Haitian Community in this country represents the largest segment of people coming from the West Indies. In the United States this community experienced a new way of life, found new values, and dealt with a new environment which was totally different from what it knew in Haiti.

It is obvious that any group of immigrants who arrive in a foreign country, particularly one of the most advanced in the world, will be affected by the way of life, the customs and the mores of that nation. In the case of the Haitian minority, which is composed of people with a low standard of living having among them a majority of illiterates, this effect will be greater than for other minority groups accustomed to more advanced levels of living and advanced technology. The children feel the brunt of those influences as well. If those Haitian children born in the United States are included, then the population of Haitian children is composed of members with a broad spectrum of age, education, instruction, and languages. Different surveys by some Haitian Centers have found that the Haitian children can be divided into many groups. Those who are monolingual (Creole only), bilingual (French, Creole), trilingual (French, Creole, English; French, Creole, Spanish), monolingual (English only), bilingual (English, Creole). The linguistic variety of the group is one of the characteristics of the Haitian community, given that the children of other minorities have only one national language whereas the Haitian possesses two.

Although for Haitian parents total dominance over the children is at the very core of child rearing practices, they are obliged to abandon this concept of strict control of their youngsters due to circumstances in the United States. Faced with a new situation and given that they are forced to spend much of the time outside the home, their children are growing up without the strict parental dominance that is typical in Haitian homes. In addition Haitian parents have been forced to abandon the role of problem solvers, providers for their children and protectors who shield them from all unwanted encounters. The

reason is simply that in the United States when someone is working he/she is obliged to spend most of the time outside of the home. The availability of jobs for teenagers has also served to help break down the traditional family structure.

A profile of Haitian children living in the United States will show that these children face a different kind of pressure unknown to students in Haiti. Because they are Black they must confront discrimination at an early age, a type of discrimination that is unknown in Haiti. That coupled with linguistic differences places a heavy burden on young Haitian children. Furthermore, their English language proficiency often depends on whether their parents plan to return to Haiti one day.

A distinction must be made between those who went to school in Haiti and those who began their schooling in the United States. One must say that those who were born here behave like American children, speaking the language fluently, and adopting the same values and having the same attitudes as their American classmates.

Those Haitian children who come to the U.S. at the age of thirteen or fourteen display mixed behavior, a combination of the Haitian pattern with some new cultural acquisitions borrowed from the American way of life. For them, coming to the United States represents a fairly traumatic experience. Suddenly they find themselves in a new environment composed of people who speak a language foreign to them. They are bewildered, amazed, and embarrassed. The situation in the schools poses the greatest difficulty for the Haitian children. Since they are from small towns, encountering unfamiliar faces is a shock to them. Games such as baseball, American football, and the like are all new to them. Even though these young Haitians are intelligent and smart, they become frustrated, and one can observe a gradual change in their behavior. They were accustomed in their country to follow the orientation given by the teacher, to play a lesser role than their American counterparts who are familiar with group learning activity and who are given initiative by their instructors.

In Haiti they were accustomed to a passive role in relation to their teachers and to learning mostly by rote. Haitian students had not been given the opportunity to express themselves in a way which would show that they were independent thinkers. In the classroom in Haiti the children participate less, both in response to the teacher and on their own initiative, than the average American student. In an American school they experience a different learning style. They are not accustomed to being able to ask questions at any time. In Haiti this practice, if not unknown, is not used by pupils in the same way. Newly arrived Haitian students seldom raise their hands. It may also be that this reticence in class may be caused by the language barrier. Nevertheless, this mode of asking questions is not compatible with their previous experience. Accustomed to performing or to doing oral or written essays on only one question, they feel embarrassed with multiple choice questions and standardized tests, especially

when the directions are unclear. They are bewildered by the American educational system of grading using letters instead of numbers.

Their previous learning experience is totally different from what they encounter in American schools. In the U.S. schools theory as well as practice is taught. Illustrative materials, science and language laboratories, visits to museums, and historical parks constitute something new for those who are not accustomed to using them, and are heavily dependent on textual materials and the explanation of their instructors.

Haitian children are not generally described as discipline problems. Indeed their attitude in class is viewed by some American teachers as a lack of initiative when the children are actually shy and have excessive respect for their instructor. Haitian children have been told at home that respect for elders is not only the beginning of wisdom but also the mark of mental stability.

A BRIEF HISTORICAL ACCOUNT OF THE FIRST BLACK REPUBLIC: HAITI

by Léonce Bérotte

Haiti is about the size of the state of Maryland. It is one of the most overpopulated countries in the world and has an illiteracy rate of about ninety-five percent.

Export products

Coffee, sugar, and bauxite.

Historical account

Haiti was discovered by Christopher Columbus in 1492 and was the site of an early Spanish settlement called *La Navidad*. Having killed most of the Arawak natives, the Spanish settled mainly on the eastern side of the island known as Santo Domingo. The western portion of the island became a French and English settlement of buccaneers. Through the Treaty of Ryswick in 1697, Spain ceded that region to the French, and it is that geographical area that is present-day Haiti. The French brought their language and culture to Haiti as well, and imported many slaves from Africa to develop a vast sugar plantation system.

The beginning of the French Revolution in 1789 sparked Black demands for emancipation and freedom. Most of the white *colons* or *commandeurs* were murdered in fierce slave rebellions. Three years later in 1792, French troops were sent in with the intention of crushing the insurrection, but they met with defeat. Two self-trained and self-educated slaves, Pierre Dominique and Toussaint Louverture, became the leaders of that revolution. Toussaint Louverture agreed to govern for France, and occupied Santo Domingo, the eastern portion of the island. He abolished slavery and gave the island a constitution in 1802. In that same year, the French military ruler, Napoléon Bonaparte, sent a large expedition to recapture Haiti and re-establish slavery on the island. Toussaint Louverture was betrayed and captured and sent to the Fort de Joux, a French prison, where he died. French troups were decimated by yellow fever and by clashes with Blacks led by Jean-Jacques Dessalines in 1803. He declared Haiti independent in 1804. He became a self-appointed emperor, Jacques the First, until his assassination in 1806 at Pont Rouge. As a result, the country was then divided into two regions. The northern portion was ruled by Henri Christophe as king, who was responsible for the erection of the Citadelle Laferrière (the eighth marvel of the world). A republic was established in the South and was ruled by a mulatto, Alexandre Pétion, who died in 1818. Pétion's successor, Jean Pierre Boyer, reunited the country following the suicide of King Henri in 1820. By 1822 the entire island became one republic, when Boyer conquered Santo Domingo. A year after Boyer's ouster, the eastern portion of the island gained its independence in 1843 and became known as the Dominican Republic. Haiti's last empire was overthrown

in 1859, and for decades the Blacks and mulattos fought for power. The country was also burdened by heavy debts and poor leadership due to internal dissensions between Blacks and mulattoes.

In 1905, the U.S. government took Haiti's customs into receivership, and ten years later the U.S. seized full control of the country, under the pretext of establishing law and order. The U.S. withdrew their troops in 1934 under the regime of Stenio Vincent, as president constitutionally elected by the people, but the U.S. retained financial control until 1941.

François Duvalier, known as "Papa Doc," was elected as president and named himself President for Life in 1964. His regime was faced with economic decline and political unrest. He became very repressive with all opposition held in check by his secret police, the "Tontons Macoutes," and held the country in terror. Duvalier died on April 21, 1971, and was succeeded by his nineteen-year-old son, Jean Claude, also President for Life.

Growth of technology in Haiti

Technology was introduced in Haiti in 1818 by King Henri Christophe, who gave scholarships to young Haitians to study in France and Italy; they studied agriculture, medicine and other subjects. The king's views were focused mainly on agriculture in order to depart from the slave customs of *coumbite* and to embark on a more practical and productive manner of growing crops and raising farm animals.

Boyer's regime likewise encouraged students to go abroad to study technology and military and metallurgic skills in France, Germany and Italy.

The U.S. introduced technical know-how in the fields of medicine, agriculture, metallurgy and the trades as well. Bauxite, alum and copper were mined.

Technology really began during the regimes of Vincent and Estimé, when hundreds upon hundreds of students were sent abroad to study and master their chosen fields: education, arts, trade, medicine, agriculture, etc. Several trade schools were created, and young Haitians were required to attend classes taught by foreign as well as native educators.

In modern times, though Haitian technology is not as advanced as that of the United States, an effort is being made to teach skills in local trade schools. However, these schools are plagued with a lack of modern equipment and adequate text and curricula.

Appendix II

[From Magloire, Eddy. *Les Etrangers Minoritaires aux Etats-Unis: L'Example Haïtien*. New York: Présence Haïtienne, Inc., 1974, 20-23. (Translated)]

Distribution [of Haitian students] by category and school district in the Borough of Manhattan (October 13, 1973)

Category A = students who have moderate difficulty in expressing themselves in English.

Category B = students who have serious difficulty in expressing themselves in English.

Manhattan School Districts		No. of French-speaking Students
District 1	Category A	0
	Category B	0
District 2	Category A	12
	Category B	10
District 3	Category A	68
	Category B	98
District 4	Category A	0
	Category B	1
District 5	Category A	6
	Category B	6
District 6	Category A	44
	Category B	13

The conclusion is obvious: where we find a heavy concentration of Haitians (the West Side of Manhattan, from 59th Street to 122nd Street, under the jurisdiction of District 3), the problem is much more acute. The problem does not arise on the Lower East Side, given the predominance of other ethnic groups, namely Puerto Ricans and Chinese. It is known that the school population of this area is under the jurisdiction of District 1.

Distribution in the Borough of Brooklyn

		No. of French-speaking Students
District 13	Category A	92
	Category B	62
District 14	Category A	2
	Category B	1
District 15	Category A	28
	Category B	22
District 16	Category A	5
	Category B	1
District 17	Category A	358
	Category B	318
District 18	Category A	128
	Category B	124
District 19	Category A	35
	Category B	20
District 20	Category A	6
	Category B	13
District 21	Category A	7
	Category B	3
District 22	Category A	46
	Category B	28
District 23	Category A	21
	Category B	6
District 32	Category A	64
	Category B	17

The number of French-speaking students (mostly Haitian) showing language deficiencies is significant in School Districts 17 and 18 — the same correlation, the same pattern as we have observed. The residential areas of Crown Heights and East Flatbush have been becoming Haitianized for several years.

In Bay Ridge (under the control of District 20) where there are very few Haitians, the problem does not arise with the same urgency, according to these figures. There is a causal relationship between the variables.

Distribution in Queens

		No. of French-speaking Students
District 24	Category A	47
	Category B	26

Included in District 24 are the following residential areas: Middle Village, Maspeth, Ridgewood.

District 25	Category A	10
	Category B	0

Included in District 25 are the following residential areas: Flushing, College Point, Whitestone.

District 26	Category A	3
	Category B	0

Including the following areas: Bayside, Little Neck, Belle Rose.

District 28	Category A	31
	Category B	13

Neighborhoods or areas: Jamaica, South Jamaica, Rego Park, Forest Hills.

District 29	Category A	99
	Category B	43

The following residential areas are in jurisdiction of District 29: St. Albans, Queens Village, Laurelton, Rosedale.

District 30	Category A	24
	Category B	10

Area: Hollis.

We find the same pattern once more in Queens: a correlation between the density of the Haitian population and the number of students exhibiting language deficiencies, sometimes "severe," sometimes "moderate." The more urban neighborhoods become integrated (Queens Village, Rosedale, St. Albans), the greater is the number of school children in those neighborhoods who exhibit language deficiencies. The causal relationship between these two phenomena seems difficult to deny in the light of the Haitian experience.

THE PUERTO RICAN IN NEW YORK

Puerto Ricans make up one fourth of the New York State school population and approximately 70% of persons of limited English speaking ability in New York City. Since the median income is $3,500, one third are on public welfare.

Many problems beset the Puerto Rican parents and children. Cultural displacement and change have caused the breakdown of the traditional family structure. Emotional disorientation, discrimination and educational failure are other factors that cause stress within the Puerto Rican family. In addition, in New York City there is often more opportunity for an unskilled or undereducated woman to find employment than there is for her husband, removing her from a traditional family role and causing many conflicts for the male ego. A further breakdown in family structure occurs as children are exposed and educated to different values than their parents hold. The resulting changes in attitudes and behavior are often seen as disrespectful and threatening.

Puerto Rican children have the highest dropout rate of any ethnic group in New York, and a great many adults are functionally illiterate. The problems of Puerto Rican students are ascribed to many factors, namely, low education and socioeconomic level of their parents, English language deficiencies, and misunderstanding or insensitivity on the part of their teachers. Attitudes within the Puerto Rican community also affect student achievement. It has been suggested that Puerto Rican children's English proficiency is directly af-

fected by whether or not their parents wish to return to the Island.

Although objective information on Puerto Rican children is difficult to acquire, it is clear that traditional child-rearing practices differentiate sex roles from a very early age, and these make a significant difference in educational attitudes and performance. For example, Puerto Rican girls show a higher anxiety pattern than boys when in a situation where they are threatened with failure, as when taking a test. This also could be ascribed to the cultural attitude that males do not admit to anxiety.

In a study conducted by Hertzig in 1968 among three-and four-year-old Anglo and Puerto Rican children, it was found that there were differences due to home experiences rather than socio-economic differences. These differences were described as follows:

a. Focus on social interaction rather than tasks.

b. Age at which independence is expected.

c. Regarding toys as entertainment rather than education.

The behavioral responses of both groups to non-verbal tasks were essentially the same, but these differences were noted:

a. Puerto Rican children were less likely to attempt the task (introduced by a Spanish-speaking testor).

b. Puerto Rican children were less likely to verbalize their response.

c. Puerto Rican children were much more likely to "work" on nonverbal ones. (Anglo children responded about the same to both.)

There is solid evidence that differences between Puerto Rican and Anglo children are not differences of intelligence but rather of cultural conditioning and environmental experiences.

Appendix IV

[Reprinted by permission from Saville-Troike, Muriel. *Bilingual Children: A Resource Document*. Bilingual Education Series: 2. Center for Applied Linguistics. Arlington, VA, 1973, 86-90.]

THE PUERTO RICAN CHILD IN U.S. SCHOOLS

Recent investigations indicate that Puerto Rican students form a large part of the total school population within the New York public school system. This group has the lowest level of education and the highest degree of difficulty with the English language.

Out of a total population of about a million public school students, 57% are members of minority groups such as Blacks (300,000) and Puerto Ricans (260,040), which means that the Puerto Ricans constitute approximately one fourth of the school population in the State of New York (Núñez, 1971).

In New York City there are also more than 135,000 students whose mother tongue is not English and who have from moderate to severe English-language difficulties. The majority (94,000) of these non-English speakers are Puerto Ricans; in other words, they constitute 70% of the non-English speakers. . . .

The Puerto Rican students are behind the urban whites and Blacks in verbal ability, reading comprehension, and mathematics. According to the Fleischmann Report, the failure in these areas is disportionally high among Puerto Rican elementary school students. Louis Núñez also points out that in a 1969 study of schools with a majority of Puerto Rican students, 85 out of 100 pupils were below grade level in reading, and one third of these students were at least two years below grade level. This problem with reading compre-

hension has a direct effect on their performance in other fields (Núñez, 1971).

In several studies made by Macnamara, the bilingual children were found inferior to the monolingual children in problem arithmetic (reasoning), but not in mechanical arithmetic. The reason seems again to be the poor reading ability since with tests of problem arithmetic, the child is expected to read and interpret those passages in order to answer the questions, whereas with mechanical arithmetic, once the child understands the process his [*sic*] difficulty ends (Macnamara, 1967).

The rate of Puerto Rican drop-outs in New York City schools is the highest of any ethnic group. A study made in 1966-67 found that 53% of the Puerto Ricans between their sophomore and junior year drop out of high school. This rate is followed by 46% in the Black group and only 29% in Others (mainly whites). This number does not include those who drop out of junior high school nor others who never reach graduation. Of those who graduate, only 46% (a total of only 2,237) continue on to college (Velazques, 1971). The remainder of students who graduate from high school but do not enter college are extremely limited since they reflect an inadequacy in oral English even upon graduating, and have non-marketable skills when they leave school. Even though Puerto Ricans received 7.4% of vocational high school diplomas in 1963, in contrast to 1.6% of academic diplomas, their difficulties with the English language decreased their ability to put their skills to use.

Another characteristic of the Puerto Rican group is its number of psychological problems. According to the Coleman Report, Puerto Rican students were more fatalistic than other students, feeling that they had no control over their own destinies and that there was little point in striving because striving implies hope (Núñez, 1971). The Puerto Rican students in New York are plagued by social and emotional disorientation, inferiority feelings, and a poor self-image. Obviously, these psychological problems affect their academic performance and their development within the society.

Teachers and school authorities initially blamed this failure on the students (because of their supposed non-communicative posture, lack of interest, low I.Q., inferiority, and number of deficiencies) and on the community (because of lack of communication with the school, and negative influences upon the students).

Recently, some Puerto Rican organizations — such as ASPIRA and the Puerto Rican Forum — as well as government and other educational entities realized that the failure was not in the child nor his community, but in the school system which was not adequately filling the educational needs of the children. The assumption that all students can benefit from the same subjects, teaching styles, and mediums of instruction proved to be incorrect.

It can be strongly concluded that when these students have equal opportunities (provided with appropriate language instruction and cultural pride)

they will become pupils with the same range of academic abilities and emotional stability as the others. This opinion is expressed by Louis Kaplan (1970) when speaking about testing these children:

> . . .the culture fair test (when cultural biases of the common intelligence tests are removed) have shown that the average real intelligence ability is in general at the same level in all social groups.
>
> . . .Many slum children who do poorly in school, as measured by present tests, have higher natural ability than upper class children who do well in school.

In the schools within the United States, the Puerto Rican child is expected to accept the conflicting values of the dominant society. In most cases teachers are not aware of these conflicting values which are being enforced by the educational system. These values are definitely not the same as those that the children learn at home.

The low educational and socio-economic level of the Puerto Rican parents usually prevents them from motivating their children or assisting them with school work. The lack of a curriculum that considers their social and cultural patterns and the lack of school orientation and understanding of another culture contribute to academic retardation and inadequate educational achievement.

A great number of children are not able to follow directions and classroom instruction quickly because of their lack of knowledge of the English language. As a result of these handicaps, the child begins to feel inadequate because neither the school nor the home provides the needed support or reinforcement. The children have the tendency to blame themselves for their failure in school, thus creating strong guilt feelings within them.

The teacher also might feel inadequate because the pupils do not seem to learn much. In many instances the pupils are reprimanded for being inattentive, uninterested, restless, talkative, and sometimes disorderly, and in others their culture is attacked. A negative attitude on the part of the teacher towards the child's culture usually damages the child's self-concept and makes him [*sic*] reject his [*sic*] cultural background.

Another problem with the teachers is that many of them are limited because of a different social, cultural and linguistic background, as well as the lack of materials and an inflexible curriculum which does not provide conditions conducive to the learning process. Due to these problems, they strive to move into "better" schools if they can get a transfer. The turnover is thus very large and adds to the insecurity of the child.

The lack of Puerto Ricans in such professional positions as teachers, counselor, and principals, and their lack of representation in the top administrative positions of the Central Board is another major deficiency.

Teachers and other professionals responsible for

school programs represent a key factor in the education of the Puerto Rican student. All too often, however, these professionals lack the necessary sensitivity that could improve the teaching of Puerto Ricans. As a result, educational programs reflect and are built upon stereotypes, misconceptions, prejudicial attitudes, and a general lack of knowledge of the realities and significance of social class and cultural differences.

Most Puerto Rican children who come to urban schools are members of the lower classes and they demonstrate characteristic social patterns. According to Kaplan, 70% (including lower class and lower middle class) of the elementary school children come from the lower socio-economic groups. In the case of Puerto Rican children, social class patterns are combined with cultural patterns. This makes it more difficult for the middle class American teacher to deal with the student because his [*sic*] training did not prepare him [*sic*] for this situation and also because his [*sic*] teaching is unrealistic for the needs of the children, who in the end are the losers. Kaplan (1970) says, in speaking about the teacher-student relationship:

> The teacher preference for the upper-status children has a direct influence on academic achievement. Heintz and Hollingshead have noted that the lower status children must do a better job than their higher status classmates to obtain similar grades.
>
> It is only the unusually bright or exceptionally ambitious lower-class child who will go to the whole route and rise above his class. Most lower-class youngsters are defeated.

The facts support these words: 80% of the upper and upper middle-class schoolmates and 20% of the lower middle-class children go to college, but only 5% of the lower class children are able to continue on to college.